

TPP Is a Structural Reform: Let's Evaluate It with Structural Models*

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The debate on the possible effects of the Trans-Pacific Partnership (TPP) is raging, and economists have been taking different sides and using different arguments and tools to bolster their positions. Some recent contributions have provided quantitative estimates of the effects of TPP based on simulations of dynamic models of the international economy intended to capture the main consequences of the TPP agreement.

The January 2016 issue of the World Bank's *Global Economic Prospects* built on work by Petri, Plummer, and Zhai (2012) and Zhai (2008) to argue that TPP implementation could raise member countries' annual GDP by an average of 1.1 percent by 2030. Gains would be larger for small open economies than for the United States (where annual GDP would rise by 0.5 percent). The World Bank's estimates also suggested limited trade diversion effects, and therefore limited negative spillovers on non-TPP countries.

By contrast, Capaldo, Izurieta, and Sundaram (2016) concluded that TPP will bring no significant benefits—in fact, it will be costly in terms of GDP, employment, and inequality—by using the United Nations Global Policy Model (GPM).

Most recently, the U.S. International Trade Commission (ITC) released a massive report that provides another quantitative assessment of the likely impact of TPP (United States International Trade Commission, 2016). The conclusions for the U.S. are that effects will be positive, but smaller than found by the World Bank and in a related study by Petri and Plummer for the Peterson Institute for International Economics (Petri and Plummer, 2016a).

Predictably, the results in these studies have received much attention in the media. This column offers my perspective on some key differences across the studies that contribute to the differences in results, and my view on what modeling tools we should use to evaluate the likely impacts of TPP—and of the similarly major trade deal that President Obama's Administration has been negotiating with the European Union: the Trans-Atlantic Trade and Investment Partnership (TTIP).¹

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¹ Capaldo (2014, 2015) used the GPM framework to reach negative conclusions also on TTIP.

1. Some Key Differences in Modeling Strategy

The differences in estimated effects of TPP across the aforementioned studies crucially depends on the underlying characteristics of the models used to perform the simulations. The GPM framework, described in detail in Cripps and Izurieta (2014), does not build on micro-level foundations and dynamics. It posits what the model-builders view as empirically plausible relations between the variables of interest, and it then imposes the constraints that these variables must satisfy in the model's general—or worldwide—equilibrium. By virtue of its omission of micro-level dynamics, the model abstracts from producer-level decisions with respect to domestic and foreign market entry or exit. In the context of this framework, Capaldo, Izurieta, and Sundaram model the main policy action that would correspond to TPP implementation as an exogenous cut in unit labor costs.

In their replies to Lawrence's (2016) assessment of what models should be used for TPP evaluation, Capaldo and Izurieta (2016) and Sundaram (2016a) highlight the macroeconomic focus of their work, arguing that their framework is better suited for evaluating the likely consequences of TPP for the U.S. and other economies by virtue of a more realistic modeling of macro-level dynamics. The GPM framework allows for external imbalances, unemployment, and changes in the labor share of income over time. Capaldo and coauthors argue that this is especially valuable to understand TPP effects by accounting for dynamics that may propagate all the way to longer-run effects.

By contrast, the exercise of the World Bank and the Peterson Institute Petri-Plummer studies takes a mostly long-run perspective by focusing on a full employment environment under balanced trade. Different from the exercises of Capaldo and coauthors, the model features micro-level decisions by heterogeneous producers in an explicitly micro-founded environment. This makes it possible to capture the feedback loop from the micro-level behavior of individual producers to the aggregate economy and vice versa. It also makes it possible to capture TPP implementation as changes in trade policy and market regulation variables clearly defined within the model, holding micro characteristics of firms and other agents in the model invariant to policy.

The ITC modeling strategy does not go as deep into micro-level foundations as the World Bank and Peterson Institute studies, since it abstracts from producer-level heterogeneity and the dynamics of market entry and exit, but it features a richer structure at the sector level. It allows for employment effects of TPP implementation, although without including distributional considerations or the effect of frictions in reallocation of labor across sectors. It allows for external imbalances, but it restricts the ratio of trade imbalance to GDP to remain fixed. While Capaldo and coauthors motivate their choice of model with a focus on short-to-medium-run effects of TPP in addition to the longer-term effects, the ITC study highlights its medium-to-long-run focus as the motivation for the assumptions in modeling the labor market and external imbalances. Like the World Bank and Peterson Institute studies, the ITC report relies on explicit modeling of TPP implementation as changes in policy variables defined within the context of the model, and then traces the outcomes of these policy actions.

2. Yes to Microfoundations

The global crisis of 2008-09 has made it fashionable to dismiss dynamic, microfounded models as “black boxes” disconnected from reality, incapable of capturing empirical phenomena that

should be crucial for policy-relevant conversation. This throws away the proverbial baby with the bath water. Abandoning the discipline of microfoundation and giving up the wealth of features that it allows us to incorporate rigorously in our models puts us on a very slippery slope—and GPM-based evaluation of TPP is a case in point. Modeling a policy change as something (a decline in unit labor costs) that *may* be an outcome of the actual policy changes implied by TPP implementation (reduction of trade barriers and changes in market regulation) can be very misleading. From this perspective, it is GPM that is a black box, and its omission of micro-level dynamics likely causes it to overlook key implications of TPP.

The argument by Capaldo and coauthors that their model is better suited for TPP evaluation than its competitors because it allows for dynamics of unemployment, external imbalances, and income distribution does not shield their work from this criticism. In contrast to the Petri-Plummer and ITC perspectives, I do believe that it is important to account for transition dynamics following implementation of major structural reforms (such as TPP—which extends far beyond mere reductions in tariffs). I also believe that transition dynamics should be accounted for in models that allow for unemployment, labor market frictions, and plausible dynamics of external balances. This is important because transition dynamics can have non-negligible implications for welfare and because—quite often—“the devil is in the dynamics”: Short-run costs can derail implementation of ultimately desirable market reforms by eroding political support. This makes it all the more important to understand the dynamic consequences of major market reforms, the role of cyclical conditions at the time of reform implementation, and even the role of macroeconomic policy in smoothing possible transition costs and front-loading longer-term benefits.² But the importance of dynamics does not mean that we should sacrifice the discipline of microfoundations or the insights that these yield. It does not imply that we should use frameworks where policy actions are confounded with endogenous outcomes.

While the models in the World Bank and Peterson Institute studies are by no means the last word in their class, a large theoretical and empirical literature in international trade has highlighted the importance of extensive margin dynamics (variation in the number of producers and products in any given market) for the aggregate and welfare effects of international trade. This literature began with Krugman’s work (1979 and 1980) and received renewed impetus with the models by Eaton and Kortum (2002) and Melitz (2003). The frameworks developed by these scholars made it possible to study entry and exit decisions by heterogeneous producers in domestic and foreign markets, and the consequences of reallocating resources across heterogeneous firms. Since then, a vast literature has documented the importance of micro-level forces in determining the aggregate effects of trade and market regulation policy.

Sundaram (2016b) claims that the World Bank and Peterson Institute studies “lack supporting economic theory, credible modeling, or empirical evidence.” The vast theoretical and empirical literature these studies build on makes it clear that this claim is plainly false. Sundaram (2016b) further faults the World Bank and Peterson Institute studies for showing that TPP will deliver many of its beneficial effects through “non-trade measures and related foreign investments.” This is a misplaced criticism: TPP (like TTIP) is not just a traditional trade deal.

² I have done much work with Matteo Cacciatore, Romain Duval, and Giuseppe Fiori that substantiates this perspective in the context of structural reforms that alter regulation of product and labor markets. Our papers can be found at <http://faculty.washington.edu/ghiro/research.html>. Insights from this work have been incorporated in the analysis of structural reforms in the April 2016 issue of the IMF *World Economic Outlook* (International Monetary Fund, 2016). Given the nature of TPP, which extends much beyond tariff reduction and impinges on regulation of many markets, these insights are also relevant for TPP analysis.

It is a large-scale structural reform aimed at redefining rules for market participation across countries and markets. It is a virtue, not a fault, of the arrangement that it would deliver many of its beneficial effects through measures that do not fall within the confines of traditional trade policy.

The balance of these considerations leads me to view both the ITC report and the World Bank and Peterson Institute studies as more reliable evaluations of TPP than the work of Capaldo and coauthors. For the same reasons, I agree with Petri and Plummer (2016b) that the ITC results are likely to constitute a “floor” for the estimated beneficial effects of TPP by abstracting from important micro-level mechanisms. But do I think that the Petri-Plummer approach is necessarily the “ceiling” (both in terms of what can and should be done to evaluate trade policy changes, and in terms of the estimated effects of TPP)? The answer is no.

3. Dynamic International Trade and Macro Models for Policy Evaluation

My own work with Melitz (Ghironi and Melitz, 2005—GM below) showed how the Melitz model with heterogeneous firms that provides the foundation for the World Bank and Peterson Institute studies can be tractably embedded in a dynamic international macro framework that allows for sizable departures from balanced trade in response to shocks (including changes in market regulation or trade policy). Work by other scholars since has extended this trade and macro setup in directions that are relevant to the TPP debate.³

Cacciatore (2014) incorporates labor market frictions and unemployment in the GM model.⁴ His analysis highlights the importance of differences in the structure of labor markets across countries in shaping the outcomes of trade integration: In a simplified world of two countries, when countries with different degrees of labor market flexibility become more integrated, unemployment initially rises by more in the more flexible country, but it also falls by more over the medium and long run. The flexible country’s GDP eventually rises by more, and this country experiences appreciation of a data-consistent real exchange rate measure—and external deficit during the first part of the transition dynamics. Except for an initial decline in domestic producer entry in both countries due to increased competition from foreign exporters, trade integration and the associated market expansion stimulate business creation, and the more flexible country attracts more entry by new domestic producers. In turn, this—and consumption smoothing in the expectation of relatively higher long-run income—make it optimal to borrow internationally by running a current account deficit (except for a very short-lived initial surplus). Notwithstanding its initial employment costs, increased trade integration yields higher welfare in both countries by resulting in higher productivity.

The mechanisms in Cacciatore’s model help us understand why reduced-form analysis of policy actions (modeling TPP as an exogenous cut in labor costs) can be misleading. An exogenous reduction in labor costs that is not symmetric across countries automatically implies that the country where costs are assumed to fall by more will experience an external surplus, as its products become relatively cheaper in international markets. Modeling trade integration as a reduction in tariffs or other barriers to trade shows that it can be optimal for a relatively flexible

³ Alessandria, Choi, and Ruhl (2013) use a related framework to highlight the importance of accounting for dynamics in evaluating the welfare effects of trade.

⁴ Helpman and Itskhoki (2010) and Helpman, Itskhoki, and Redding (2010) also develop trade models with heterogeneous firms and unemployment, but they focus only on the long run. Here I focus on models that make it possible to trace the dynamic effects of trade integration from the short to the long run.

market economy to run deficits, at least for some time. Although trade integration results in higher average firm productivity in Cacciatore's model (through the pressure of increased competition and the reallocation of market share toward the relatively more efficient producers), wages rise by more than productivity, implying higher, instead of lower, unit costs of production.

The microfounded Cacciatore-GM model thus delivers very different—at a minimum, more nuanced—predictions from those of the GPM exercise of Capaldo and coauthors. The predictions follow from a theoretical framework that can address the criticism that models of the type used in the World Bank or Peterson Institute exercises assume full employment and very short-lasting—or even zero—external imbalances. The predictions account for micro-level dynamics that are absent from the ITC model.^{5,6}

It is also possible to extend this type of setup to allow for variable flexible-price markups, thus addressing the criticism by Capaldo and coauthors that competing models do not capture variation in the labor share of income. (See the analyses of structural reforms in Cacciatore and Fiori, 2016, and Cacciatore, Fiori, and Ghironi, 2016, or the extension of the Eaton-Kortum model in de Blas and Russ, 2015.) In Cacciatore and Ghironi (2012), we develop a version of the framework that allows us to study the interaction of trade policy, market reforms, and macroeconomic policy, including exchange rate policy. Consistent with the call for international macro policy coordination that is part of the TPP framework, the model implies that international cooperation in monetary policy maximizes the beneficial effects of increasing trade integration and market flexibility—and that trade integration increases the desirability of macro cooperation relative to historical policymaker behavior.

Mandelman (2016) and Mandelman and Zlate (2016) develop further extensions of the framework that make it possible to address other dimensions of the TPP debate (and other important policy questions). In Mandelman's model, workers have heterogeneous skills and multinational firms have the ability to offshore jobs. The model can thus replicate the observed polarization of employment and wages as trade integration rises: Job opportunities in middle-skill occupations decrease, and employment opportunities concentrate in the highest- and lowest-wage occupations as firms increasingly offshore middle-skill jobs and specialize in high-skill ones that are difficult to fill overseas. Low-skill occupations are protected from offshoring as they consist of tasks that must be provided in the same physical location of the final consumer.

Mandelman and Zlate (2016) augment Mandelman's model by allowing for endogenous, low-skilled immigration and skill upgrading of the native labor force. As in Mandelman's paper, offshoring contributes to polarization of employment and wages, but immigration boosts low-skilled employment and dampens low-skilled wages. Importantly for the TPP debate (and the debate on the costs and benefits of immigration), despite their asymmetric effects across occupations, increases in either offshoring or low-skilled immigration have a positive effect on aggregate welfare in the model-U.S. economy. Although lower trade barriers negatively affect middle-skill occupations, they benefit the high-skill ones. Aggregate welfare gains arise from higher productivity in high-skill occupations. Low-skilled immigration is also welfare-

⁵ With respect to external imbalances, even if his model does not feature the micro-level dynamics of the Cacciatore-GM framework, Barattieri (2014) presents important insights on what to expect from increased integration in service trade—another important feature of the TPP agreement.

⁶ Of course, the simplified nature of two-country exercises for academic publication such as Cacciatore (2014) implies that his quantitative conclusions should not be taken as estimates of likely TPP effects—for this, one would need to build a multi-country, multi-sector version of the model, with a richer policy exercise. Nevertheless, the qualitative results of Cacciatore's analysis point strongly to the importance of channels that are neglected by some or all existing studies of TPP, and to the importance of not confounding policy actions and outcomes.

improving by reducing the cost of low-skill services and strengthening the incentive for native workers to invest in training.

The models in the ITC analysis and the World Bank and Peterson Institute studies feature a much larger number of countries, richer sectoral structure, and wider menu of trade and regulation policy experiments than in Cacciatore (2014), Cacciatore and Ghironi (2012), or the papers by Mandelman (2016) and Mandelman and Zlate (2016). By using a framework in which reduction in trade barriers and regulatory harmonization induce increased business creation and entry into markets, the World Bank and Peterson Institute studies are likely to capture channels that would be crucial to TPP-induced dynamics. These models still abstract from important features of labor market dynamics, sizable external imbalances, and variable markups that can have important implications for the effects of major changes in trade and regulation policies—and can be crucial to understand the interaction of these policies with demand-side, macroeconomic policy. Ideally, a comprehensive, quantitative assessment of likely TPP impacts would incorporate these features. We are not there yet, but the body of assumptions and results in the ITC, World Bank, and Peterson Institute studies, and of results in work like Cacciatore’s, suggests that a framework that is extended to include these additional ingredients (and others mentioned above) would not overturn the conclusion that TPP would bring significant benefits.⁷

4. Conclusion

TPP is a major structural reform that cuts across countries and markets by reducing barriers and harmonizing regulations. If we want to understand and evaluate its effects, we need to work with structural models of trade and macro dynamics—models that start from the micro-level structure of the economy and do not confound policy actions and outcomes. As Krugman (1995) put it: “What we need to know is how to evaluate the microeconomics of international monetary systems. Until we can do that, we are making policy advice by the seat of our pants.” Albeit incomplete, the exercises in the World Bank and Peterson Institute studies are steps in the right direction. The results of these studies and of research that incorporates additional desirable model features encourage those of us who think that TPP will be beneficial.

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⁷ From my perspective, the most important force that may at least partly undo the beneficial effects of TPP would be the response by key outsiders—for instance, China—especially if TPP were used as a tool to antagonize them rather than a vehicle for more effective engagement. Expanding our studies to allow for endogenous, strategic responses by TPP outsiders is another direction that deserves more analysis than currently available.

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