

Modeling the Trans-Pacific Partnership: Should Policy-makers Assume They Operate in a Perfect World?

Jeronim Capaldo and Alex Izurieta*

September 19, 2016

Abstract

A Congressional Research Service report reviews existing studies of the Trans-Pacific Partnership. While the report provides a detailed critique of our study based on the United Nations Global Policy Model it fails to acknowledge the many reasons of dissatisfaction with standard trade models.

In this commentary we review the main assumptions of the standard trade model, which are often confined to appendices and small print although the model's pro-liberalization results depend on them. We focus on five unrealistic assumptions: perfect competition in product markets, perfectly efficient financial markets, the idea that macroeconomic outcomes can be inferred from individual behavior, full employment and invariant income distribution. The glaring lack of realism of these assumptions highlights the advantages of using the GPM instead of standard trade models.

1. Introduction

In recent months, a number of reports have reviewed the alternative models used to estimate the impact of the Trans-Pacific Partnership (TPP). These include the Commentary by the New Zealand Ministry of Foreign Affairs and Trade¹, the Report by the United States' International Trade Commission (ITC)² and a report published by the United States Congressional Research Service (Jackson, 2016).³ These reports comment extensively, and largely negatively, on our Tufts University study (Capaldo, Izurieta and Jomo, 2016) that applies the United Nations Global Policy Model (GPM).

The ITC report, which is a comprehensive review of existing studies and a prudent endorsement of TPP, has been reviewed in Jomo (2016).⁴ The study by the Government of New Zealand (NZ, 2016) has been reviewed in Izurieta (2016).⁵ In what follows, while referring to Jackson's (2016) assessment of our work,

¹ See New Zealand Ministry of Foreign Affairs and Trade (2016): http://www.parliament.nz/resource/en-nz/51SCFDT_EVI_00DBSCH_ITR_68247_1_A490177/33e1b914eb7d00cbec8a838e326aa71a79de818a

² See United States International Trade Commission (2016): <https://www.usitc.gov/publications/332/pub4607.pdf>

³ See J K Jackson, US Congressional Research Service (2016): <http://www.fas.org/sgp/crs/row/R44551.pdf>

⁴ See Jomo K S (2016) in: <http://www.ipsnews.net/2016/07/us-government-report-exposes-exaggerated-tpa-growth-claims/> and <https://www.project-syndicate.org/commentary/trans-pacific-partnership-shell-game-by-jomo-kwame-sundaram-2016-06>

⁵ For a specific review of the Commentary by the government of New Zealand, see A Izurieta (2016): <http://www.ase.tufts.edu/gdae/Pubs/rp/IzurietaTPPNewZealandMar2016.pdf>

we take the opportunity to reflect on methodological misconceptions both about the ‘standard’ trade model used to analyze TPP and about our modelling approach.

Jackson (2016) undertakes a review of existing studies of TPP from the standpoint of standard trade theory. This theory is well reflected in mainstream Computable General Equilibrium models, such as the Global Trade Analysis Project (GTAP), and Jackson sees no need to justify their underlying methodology. Rather, considerable scrutiny is directed towards the GPM, which is not aligned with such standard theory. In fairness, Jackson acknowledges that *all* empirical models suffer from limitations in embracing a complex world economy and that assumptions made in model scenarios matter. But the implications of the most essential assumptions of GTAP-type studies, largely unscrutinized in all the above mentioned reviews, deserve more explicit treatment.

For the sake of brevity, here we focus on five issues: price competition and equilibrium outcomes; saving-investment dynamics; the distinction between micro-economic and macro-economic analysis; income distribution and employment.

2. Price competition and equilibrium: core foundations of the GTAP model

The GTAP research endeavor began with the main objective of informing the Uruguay Round of multilateral trade negotiations. Trade liberalization and deregulation, the expected outcomes of the Uruguay Round, were assumed to reduce barriers to trade in goods and services, as well as capital, so significantly that the world economy would closely resemble a textbook case of ‘perfect price-competition’, ‘general equilibrium’ framework.⁶

However, the model’s theoretical foundations raise obvious questions about its policy relevance. In a 2013 paper⁷ we have focused on the lack of realism of the assumption of competition in labor markets mediated by wage flexibility in an international economy presumed free of barriers (hence we touch the topic only briefly further below). Perhaps more useful here is to focus on the assumption of perfect competition in product markets. According to the theory underlying GTAP, producers choose to manufacture a quantity of their product that allows a ‘normal’ profit.⁸ As long as marginal costs are lower than marginal revenues, the theory goes, it is profitable for firms (those already present in the market as well as newcomers) to increase production. Higher supply would drive prices down until the incentive to expand production is eliminated.

⁶ According to GTAP documentation ‘the standard GTAP is a multiregion, multisector general equilibrium model with perfect competition and constant returns to scale’ (the text was extracted from the GTAP webpage in 2007, as <https://www.gtap.agecon.purdue.edu/models/default.asp>) This general description refers to GTAP version 6, the most commonly used model (variations are contemplated further below).

⁷ See J. Capaldo and A. Izurieta, “The Imprudence of Labor Market Flexibilization In A Fiscally Austere World”, *International Labour Review* 2013/1.

⁸ This assumption can be expressed in a variety of ways. In a common textbook version each firm manufactures a quantity of its product such that the revenue of the marginal unit (equal to the sales price of the product) is equal to its marginal cost. As a result, no profits are obtained beyond those that allow compensating the invested capital at “market” rate. The concept of market rate is clearly self-referential.

The obvious question is: can industrial firms reasonably be assumed to operate in this way? Can financial services firms? Differently from GTAP, many models contemplate that industries are not perfectly competitive and that each price contains a mark-up that expresses the firm's market power. That is because most markets are oligopolistic. The few producers of each distinct product can charge prices above costs without consumers deserting them or other producers trying to enter the market because modern products are branded and subject to patents and other prohibitive 'barriers to entry'.⁹ The assumption of perfect competition underlying GTAP may be 'standard' but only makes sense for a limited number of agricultural markets representing at best 6 percent of world output¹⁰. When oligopolistic markets and prohibitive entry costs or patents enter the picture, GTAP models are ill-suited to analyze today's global economy (unless additional unrealistic assumptions about economic adjustment are introduced, as discussed further below).

To be more specific, general equilibrium theory suggests that, by virtue of the expansion of markets favored by trade agreements, demand for product "A" may rise to the detriment of demand for product "B". Consequently, the price of product "A" will increase leading to extra profits for its producers. At the same time, producers of "B" will face 'lower-than-normal' profits because reduced demand for their product will push their prices down. In this situation, the standard theory predicts that new firms will enter market "A" while at least some producers of "B" will exit, possibly moving into "A". The resources used to produce "B", including labor, fixed capital and know-how, are assumed universally fungible so that they can be seamlessly used in market "A". Sadly, in the real world, it does not work that way. In fact, three years after the GTAP model was born, the Uruguay Round was concluded with the signing of the Agreement on Trade-Related Intellectual Property Rights (TRIPs). These have since restricted free trade (and, hence, market entry) in many industries. In the modern world that policy-makers, unlike many researchers, know only too well entry in many markets is made impossible by TRIPs or by new technologies, capital and know-how beyond the reach of newcomers. The standard model may provide the algorithms and the assumptions, but these mean little to nothing to those who were outcompeted by the opening of the economy to international trade.

⁹ GTAP model expansions and other global trade models based on the GTAP database may consider alternative model closures by relaxing some of the restrictive assumptions of perfectly competitive price formation. But at its core the GTAP framework retains its ability of ensuring full equilibrium of all productive factors. In one general strand, there is room for endogenous mark-up pricing but full entry/exit from product markets or its threat will in the long run induce zero profits (i.e. above the 'normal' profit rate). In another strand, when fix mark-up pricing is assumed, the models would simply show either higher productivity thresholds for market entry or a supply-driven creation of new products and their matching demands. Either way, new model closures boil down to forms of product market entry conceptually equivalent to perfect price competition models. Under these varieties, moreover, global trade is conveniently assumed to reduce productivity thresholds or costs by triggering larger economies of scale. See, for example: Z Argul, N Villoria and T Hertel, 2016, 'GTAP-HET Introducing Firm Heterogeneity into the GTAP Model', *Journal of Global Economic Analysis*, 1(1), p. 111-180; P B Dixon and M T Rimmer (2015) 'Modern Trade Theory for CGE Modelling: The Armington, Krugman and Melitz Models', GTAP Technical Paper 36 (February); D van der Mensbrugge (2005), LINKAGE Technical Reference Document Version 6 (January).

¹⁰ The recent trend towards higher competitiveness in markets for intermediate goods does not imply that markets for final products are becoming more competitive too. In fact, there is evidence that the increasing geographical dispersion of productive processes -- a phenomenon known as globalization of value chains -- ultimately hinders competition (see *Trade and Development Report 2026*, UNCTAD, Geneva). While costs may have decreased in some stages of production, the mark-ups embedded in final prices have been preserved or increased. Accordingly, every GTAP sector representing a final product should reflect some monopoly power.

Many of the criticisms raised by Jackson (2016) are about the presumed inability of the GPM to incorporate shifts in production and resource allocation in perfectly competitive markets, which should ensure that losers quickly reposition themselves so that eventually everyone wins (consumers, workers and entrepreneurs). In the GPM, as can be inferred from the model's technical description, there is significant scope for resource substitution, price determination and their effects on production, trade flows, distribution and other variables. But the unrealistic assumptions at GTAP's core that allow for overly enthusiastic full-equilibrium outcomes are purposefully absent.

3. Saving and investment, supply and demand and all that

Most global models, including GTAP and the GPM, include behavioral relations which are generally estimated econometrically within a coherent accounting framework. But the outcomes of each model depends on the assumptions about the way the economy adjusts to a change imposed from outside, such as a policy change.

This exposé, although elementary for modelers, highlights the divide between two modeling universes that have always been distinct: demand-driven and supply-driven. Understandably, most modelers claim that their models (including GTAP and the GPM) have both supply and demand features, which is generally true. But at each point in time it is either demand forces or supply forces that determine the outcomes. As a matter of fact, GTAP too has demand and supply features but in GTAP applications demand only determines short-term outcomes while supply drives long run outcomes. Supply is determined by inputs availability and productivity. In so far as trade enhances both, it leads to an increase in supply. In the mid- to long-term, *therefore*, output and demand for all inputs, including labor, increase until full employment is reached. Accordingly, models that do not show such congenial trade-driven outcomes by virtue of the full employment assumption are considered unfit. Being a demand-driven model, the GPM falls into such category.¹¹ "Therefore" above is emphasized because between the supply-enhancement potential of trade deals and the outcomes of higher output and employment in GTAP models lies a fundamental assumption.

The assumption of a supply-driven adjustment mechanism is embedded in the connection between saving and investment. Courtesy of eighteenth-century French economist Jean Baptiste Say,¹² models of the GTAP kind assume that incomes not consumed by households (savings) are either fully invested, or consumed in the next cycles because savings, as a form of wealth, encourage consumption¹³. In most cases savings are assumed to be fully invested.¹⁴ But the way in which savings are actually turned into

¹¹ See, for example: J K Jackson, op. cit: "the demand-driven GPM macro model does not incorporate important supply side effects that arise from trade agreements and, therefore, assumes large losses in employment, output, and wages in all TPP partners." (p. 26)

¹² The literature on the know Say's Law is vast. An entertaining account can be found in J K Galbraith (1952) *American Capitalism: The concept of Countervailing Power*, Boston: Houghton Mifflin Harcourt

¹³ In such cases where part of savings are considered financial wealth, the consumption function depends on expected income and financial wealth.

¹⁴ See for example '[...] Abstracting from international capital flows, knowing savings we also know investment' (p.3), in J Francois, B McDonald & H Nordström (1996) "Liberalization and Capital Accumulation in the GTAP Model", GTAP Technical Paper No 7.

investment, a process that in reality involves the financial sector with its own dynamics and features, is usually ignored (in the GTAP world there is no financial sector). In some cases the assumption is so 'natural' that neither saving nor investment are even mentioned.¹⁵ But the implications are notable, especially for the model's adjustment mechanism and, as highlighted below, for the analysis of income distribution. An increase in household savings, driven by an increase in real incomes, or a worsening of income distribution or a loss in asset values that may result from trade liberalization, means that total demand for goods and services will not be able to absorb the economy's total supply (a fact that is true for a single country and for the entire world economy). If no simultaneous increase in investment is provided in the exact amount of the increased saving, the economy's productive capacity will be under-utilized (i.e. there will be excess capacity).

In a demand-driven model, excess capacity is a sign that future income and, thus, future expenditure may be affected. Consumers will likely reduce expenditure as their expectation of earnings diminishes (or fears of unemployment increase) and investors will lose incentive to expand production, since the value of their investment is strongly influenced by sales expectations. In a demand-driven model this does not necessarily imply a downward spiral but there is no automatic mechanism that brings the economy back to full employment. In a supply-driven model of the GTAP kind there is no such mechanism either strictly speaking: there is simply the assumption that all savings resulting from real income gains provided by trade are invested in the current period (or in some models, increased savings lead to higher consumption in the mid-term as the wealth accumulated works as an incentive to consume).¹⁶

As an assumption, the way investment and savings are consolidated in GTAP models is not only ingenious, but is also essential to provide the desired implications for free trade. But it hardly reflects the way the economy works. In the United States, for example (and other TPP economies show similar patterns), average private saving between 1975 and 2015 was about 20 per cent of GDP while average private investment averaged 17 percent (saving rates were lower than investment rates only in the run-up to recessions). If all savings had been invested as assumed in such models, the United States' GDP of 2015 would be three times greater than it actually is! In the real world where TPP is meant to operate, the

More recent models may assume that a share of savings that is not invested is represented by financial wealth, which in turn influences consumption. But since in these cases the financial sector (or more narrowly the banking sector) is ignored, many modelers actually overlook the problem altogether, eliminate the need of modelling the entrepreneurs and all household savings are eventually invested by the households themselves (see, for example J. Anderson, M. Larch and Y. Yotov, 2016, 'On the effects of the Transatlantic Trade and Investment Partnership on Trade and Capital Accumulation', presented at the EEA meetings, Geneva, August 2016).

¹⁵ The review of TPP studies by J K Jackson does not mention 'saving' at all, except when referring critically to the saving-investment balance in our UN GPM simulation, which the author misrepresents poorly. Likewise, 'investment' is only mentioned in the context of 'foreign' investment (which is a financial flow, not real investment). In fairness, many GTAP model versions, in so far as production is determined by a Cobb-Douglas function, treat physical capital explicitly (the accumulation of capital formation after depreciation) but the relation with the flow of saving is as best hidden.

¹⁶ Other global models different from trade models or those not in the GTAP tradition may include an interest-rate mechanism for the consolidation of investment and saving. Essentially, such models devise demand and supply functions for money and loanable funds in a way that clears the money markets. Accordingly, as the interest rate falls investment rises. Though these models have attracted some attention in the past, the story they tell is of little relevance at present, when most major economies have been close to the 'zero bound' rate for several years and yet investment remains sluggish.

gap between saving and investment is translated into varied forms of financial investment (including private assets or public sector bonds) by households, firms, pension funds and others. Further considering the ability of financial intermediaries to leverage existing funds, and the significantly enlarged networks of operations generated by such trade and investment agreement, financial activity will likely expand. But by accepting the assumption that all savings simply represent real demand for goods, policy makers would be missing an important part of the picture.

In sum, taking the GTAP model outcomes at face value means ignoring the very fact that our economies experience, in normal times, a structural demand gap. The latter can be made worse by free trade and investment agreements. Since trade and investment agreements lead to considerable reallocations between production, earnings, consumer demand and investment, assuming by a sleight of hand, as GTAP modelers do, that investment equals saving so that effective demand rises to any new level of pre-determined supply is like having your cake and eating it too.

4. The GTAP policy landscape: microeconomic units as far as the eye can see

Another consequential choice in economic modeling is about the unit of analysis. Models in which the units of analysis are economic sectors offer a good mapping of inter-sector transactions and a good perspective on the options to direct these flows in a desired way through policy intervention or incentives to the private sector. These sector-specific models can be useful for the analysis of industrial relations, input-output linkages and for the analysis of traditional trade agreements. GTAP's mapping of sectors, technical coefficients and capital (and in some cases labor) at the firm level provide valuable information.

The GPM scenarios of global trade and investment agreements like the TPP build on such a mapping of sectors and production techniques taking the GTAP trade outcomes as start-up assumptions. But every assumption imposes limitations, which we must accept while refining the analysis of issues that are core to the model's objectives. For the GPM, a central issue is how policy decisions influence technical progress and structural transformation, distribution, GDP growth and employment.¹⁷

¹⁷ A number of passages in Jackson (2016) highlight the disregard for policy that is typical of CGE modelers who simply assume that market forces will achieve full employment and equilibrium; Unsurprisingly, therefore, this leads to the inference that the sole mention of the public sector in our contribution equals a call for interventionism. Thus, Jackson observes that "[...] the authors focus on wages as a key government policy variable" and that we [...] "also assume that businesses and policymakers will undertake to negotiate lower wages for all workers in the economy. This assumption seems to suggest that the government will replace private labor markets by injecting itself into the process of negotiating private labor contracts and setting wage rates throughout the economy. This assumption also seems to arise from the notion that international trade comprises such a commanding role in the economy [...]" (p. 27)

This manages to both misrepresent our analysis and promote offering an idyllic view of an invisible hand determining outcomes. Nowhere in our contribution do we claim that wages are a key government policy variable or that governments replace labor markets to settle the wage rate. What we do argue is that freer trade and finance allows the private sector to exercise growing unfettered power to determine wages, thereby increasingly marginalizing or undermining defense mechanisms against wage depression, usually available to workers in modern economies: free association, welfare entitlements (automatic stabilizers), labor market regulations, minimum wage legislation, protection from unfair dismissal, etc. Likewise, the following shows a lack of understanding of our contribution as well as core GTAP features:

While sector disaggregation is useful, technical dynamics in standard trade models are poorly represented. Since the pioneering work of A. Young (1928) on dynamic increasing returns and economic progress, it has been widely recognized that international trade, by expanding markets and allowing economies of scale, leads to technical progress through a process of specialization. The key to this innovative analysis continues to be the interaction of supply and aggregate demand. But by focusing on individual firms and their assumed productivity it is impossible to capture aggregate demand feedbacks. The shortcoming is all the more serious when evaluating modern international agreements, which include trade, finance, regulatory standards and even environmental considerations. It is widely recognized that these agreements affect profit expectations, or even more, that international investment responds to changing prospects of profit earning. If moreover profit and wage incomes are spent in different proportions, on aggregate basis transferring income from one to the other changes effective demand and, in turn, it affects the matching of profit expectations and investment decisions. Standard trade models miss a big part of reality by looking only at individual profit motives and by taking productivity enhancements as assumptions disregarding the aggregate demand feedbacks that lie at the root of increasing returns.

Likewise, by assuming that production is described by a mathematical function applied to individual sectors with given technical coefficients, standard trade models imply that labor can always be replaced by capital (and vice versa) at a given rate. Price fluctuations in either of the factors of production will ensure full utilization at equilibrium. The possibility that investors' activity may lead to instability, like during the 'dot-com' bubble and its implosion, is assumed away. So is the possibility of protracted 'jobless recoveries' (more on this below). Similarly, the availability of financial assets and the structure of the financial system, which undoubtedly change under a comprehensive free trade agreement, matter for the analysis of macroeconomic feedbacks and the space left to policy-makers. These are phenomena captured at the aggregate level and the representative agents of standard trade models have consistently ignored them.

“The authors also make a number of assumptions about capital flows and the policies they argue governments will take to preserve capital inflows.

[...] In particular, they contend that capital inflows depend on a country's fiscal policy, or the government's budget deficit, in order to attract foreign capital. This assumption, however, seems to contradict the more commonly accepted concept that capital inflows reflect the overall savings-investment balance within the economy as a whole, not simply the balance in the government account.” (p. 28)

On the latter point, our reviewer acknowledges a few lines further on that a number of macroeconomic outcomes such as interest rates and exchange rates affect capital inflows, themselves of course subject to a range of developments in the world economy and the actions of investors in the context of uncertainty. It is curious that the GTAP-based exercises that we question come up with precise figures about capital movements (foreign direct investment in particular) without paying any attention to modeling at least some of the macroeconomic dynamics enunciated in Jackson (2016). Not only is there no modelling of external portfolio movements, there also is no modelling of a banking or financial system either. If there is an artificial assumption it is in these models, not ours. The GPM at least does model the financial sector (domestic and external), even if in perhaps still rudimentary ways.. This brings us to yet another misunderstanding in Jackson (2016): we do not imply that capital inflows are equal the public sector 'investment-saving' balance. What we argue is that one of many factors that influence the decisions of foreign investors is the expected tax treatment relative to other potential partners. Likewise, we argue that foreign investors, in a context of fully liberalized capital movements typical of modern free trade agreements, are influenced by the prospects of financial stability of public sector accounts in the host country. Ignoring such basics of investors motives runs counter to what both policy makers and investors in the real world know full well.

It is generally claimed that models such as the GTAP focus on phenomena such as trade creation and trade diversion, allowing them to underscore effects on economic activity and employment. But to the extent that these phenomena are real, they are reflected in the aggregate data that macroeconomic models like the GPM use. An aggregate model should not be an obstacle to capturing important facts contained in the data. But if such results do not show up, even if the mechanisms were real, they ought to have been netted out and therefore little can be said about them in the aggregate. As noted in Jomo (2016), this may be one explanation why the ITC study is far more moderate about the aggregate effects of TPP.

Other limitations of the standard trade model that have direct implications for policy emerge when aggregating the outcomes of firms and households' activities. For example, the elimination of a sanitary control or an environmental regulation is viewed only as eliminating a cost for businesses. In this logic, the more such costs are eliminated (and TPP promises to be highly effective in this sense) the better for the economy. But in reality most costs related to regulation double as someone's income or safeguard future incomes. Thus, their elimination has an impact on demand and ultimately on growth and employment.

5. Distribution matters... for all

The distribution of income between wages and profits matters for the efficient functioning of the economy. If real wages do not grow over time at the same rate of productivity, demand may easily become insufficient to sustain growth and employment. Unfortunately, in most developed economies, including the United States, and in many other TPP countries since the 1980s real remuneration growing on a par with productivity have been the exception rather than the rule. Hence, the GPM concentrates on the wage-share, not wage rates, because what matters at the aggregate level of an entire economy is the distribution of income between owners of capital and labor.¹⁸

Our concern with the distributional impacts of free trade agreements go beyond questions of fairness. Distribution matters for macroeconomic stability and sustained growth in the medium run. Price stability, aside from physical constraints or policy shocks that usually affect commodities prices, depends on the stability of the real cost of producing one unit of output. At the aggregate level, real unit costs are broadly matched by the relative real earnings of labor. A decline in the wage share signals a

¹⁸ Jackson (2016)'s reference to our work on this issue is unnecessarily convoluted and unclear. After claiming that the GPM simulations settle the nominal wage, he argues:

“Among economies that possess differing levels of technological development and productivity, however, trade likely is driven more by the value of wages relative to the level of productivity than a simple comparison of nominal wages across countries.” (p. 27)

In the GPM, however, there is no explicit role for nominal wages or the comparison of wages between countries. The critical variable is the wage-share. Informed readers will be aware that the wage share is stable if the average real wage grows on a par with productivity in real terms. If the premises of the 'standard trade model' were correct, the wage share in the United States and any other economy should be stable. But it is not. The wage share has been consistently declining throughout unfettered globalization from the mid-1980s on, and the decline has usually been sharper in the context of free trade agreements. This is a simple observation about wage-profit distribution that is incorporated in the distributive dynamics of the GPM. It is more transparent and realistic than assuming complex mechanisms of firm-level substitution following marginal propensities which have no connection with the reality observed in the aggregate data.

prospective deflationary bias. This is because payments to factors are translated into the incomes of the owners of such factors. A fall in labor incomes, usually accruing to households with relatively lower earnings than profit owners and with higher propensities to consume, would imply a relative fall in consumption demand (except cases of debt-driven household expenditure that are known to end in collapses). Even if standard models tend to assume that the relative gains in terms of profits will be fully spent in terms of investment, the outcome would be a transformation of the productive processes toward higher capital-intensity and lower labor-intensity, leading to further pressure on wage shares and further deflationary tendencies for the economy as a whole.

If trade makes a difference, it works in the opposite way to that predicted by the standard trade model. Unfettered trade and financial liberalization triggers a global 'race to the bottom'. Following the compression of the wage share in one economy, usually touted as a gain in competitiveness because of the reduction in unit production costs, export demand is often expected to more-than-compensate for the flagging consumer demand. Although this may happen in some cases, it cannot happen for the global economy as a whole because competition among partners triggers similar efforts towards wage compression elsewhere. The resulting downward pressure on consumer demand is general, thus affecting import demand for all and eventually eroding the initial export gains ¹⁹.

6. Taking full employment seriously

In the Tufts study on TPP, as well as the study of TTIP, sufficient space is devoted to the critique of the full employment assumption embedded in the standard trade model. Since that assumption's theoretical justification can also be reconstructed by stitching together the previously exposed unrealistic assumptions of the standard model, here we simply underscore the basics.

The extreme version of full employment models did not survive the test of time. The assumption that all markets, production, final goods, money and the labor market clear automatically through price flexibility and converge to a unique, full employment solution was replaced with a dichotomy of short-run and long-run adjustments. It is argued that in the short-run frictions, time lags and skill mismatches may lead to unutilized resources. But such frictions and mismatches will be ephemeral. By assumption, all resources left unemployed will generate new instances of production leading to increases in aggregate supply ensuring that idle factors will push supply prices down to the point of creating a matching aggregate demand. The outcome will be full employment and full resource utilization. If such a full-employment equilibrium is not reached, it is due to interferences such as actions by governments or trade unions.

This approach is proven to diverge from the reality most people experience. A discipline that is unable to interpret the dynamics of the real world in which governments exist, labor associations are an essential part of the socio-economic fabric, patent owners exercise pricing power and oligopolies fuel political lobbying, is not useful. Apologists of the 'standard model', in a further twist to maintain the full

¹⁹ We analyze this issue specifically in J. Capaldo and A. Izurieta, "The Imprudence of Labor Market Flexibilization In A Fiscally Austere World", *International Labour Review* 2013/1.

employment parable often come up with another explanation: at any point in time, or preferably in the long-run, market clearing properties will prevail. If there remained unused resources or idle workers, such unutilized factors should not be taken into account. Unemployment is ruled out no longer by assumption, but by definition. Though there are specific reasons why under certain circumstances a capable worker decides to exit from the labor market, it is mostly the inadequacy of demand that puts off valuable resources. Workers who lost their skills, who have become discouraged in a lengthy job search, who are only taking part-time jobs because they cannot find full time jobs, who are not ready to accept jobs below their capacities, or who are not willing to take remunerations or working conditions below their deserved standards, should not be ignored for the purpose of preserving an unrealistic model assumption.

Reflecting on the full employment assumption, Jackson (2016) suggests that in the United States the assumption makes sense since unemployment rates have been decreasing. Low unemployment rates are good news, even if it has taken more than six years to almost reach pre-crisis levels, and more than three years following the previous, shallow recession of 2001. But the crucial part of the reality virtually ignored in this argument is employment rate, the share of the working-age population that is actually employed. Employment rates in the United States have not yet recovered since the bursting of the dotcom bubble. According to the US Bureau of Labor Statistics, compared to 64.4 percent in 2001, or to 63 per cent in 2008 before the financial crisis, the US employment rate stood at 59.6 percent in June 2016. Nearly five per cent of the population which on historical standards was employed could not find suitable job. A standard model that ignores this is not taking full employment seriously.

In the workings of the GPM we reject the idea of a natural force leading to full-employment and embrace, instead, the notion that situations of low employment rates can prevail unless some source of demand can realistically be activated and sustained over time.

7. By way of conclusion: why Jackson (2016)'s critique of the Tufts study is misplaced

Sections 1-5 highlight the main reasons for dissatisfaction with GTAP, the model generally used to project the effect of trade and investment agreements. By imposing perfect competition or its subtle variations, by assuming that investment will always match savings allowing fully satisfactory supply-driven outcomes, by considering that national economies and the world economy follow the patterns assumed for optimizing individual firms, by ignoring aggregate demand feedbacks from distribution, and by assuming full employment, the GTAP model ignores many aspects of the real world, which are critical to the effects of trade and financial liberalization. Such a model also overlooks effects that emerge at a global level such as endogenous changes in international financial flows and widespread pressures on policy space mediated by tighter reins on the fiscal stance induced by greater internationalization of finance. Consequently, despite its detailed data on trade and individual markets, the standard model leads to biased optimistic projections of aggregate demand, growth, employment, investment and income distribution.

Jackson (2016)'s critique of our Tufts study can be condensed into four themes: we carry out an intentionally negative assessment by using non-standard assumptions; we do not reveal our assumptions; the study downplays the role of market adjustments and overplays the role of governments; the GPM model exercise is not up to the task due to lack of detailed trade data for all countries and sectors.

For lack of a better alternative to modelling sector-specific results of trade and financial liberalization, we accepted to use the trade outcomes from GTAP studies as our starting point of analysis. This is our main and most controversial assumption. We accept this as a limitation. But in order to provide a better alternative for macroeconomic projections, in the GPM we reject the assumptions that underlie the standard model in favor of assumptions that better reflect the functioning of contemporary economies. In the functioning of modern economies policy still plays a role but the potentially wider reach of trade and investment agreements of the TPP kind would tend to erode labor protections, as well as policy space. This includes a weakening in the ability to collect revenues from economic activity to fulfil essential functions of government provision and welfare improvements, as well as partial or total lifting of regulations that are depicted as obstacles to doing business. The GPM exercise carried out in the Tufts study also makes an effort to model explicitly the aspects of modern economies that are crucial to understand the outcomes of freer trade and finance: the financial system, portfolio allocations and asset prices, and the mutual influences between economic activity and public sector policy. These are aspects that constitute essential components of an agreement that is far more comprehensive than old-school, tariff-focused trade agreements.

The model assumptions and mechanisms of adjustment are explained in the Technical Paper referred to in the Tufts study. TPP-specific adjustments on current account and capital account outcomes, distribution between profits and wages, employment dynamics, the fiscal stances and GDP outcomes are explained in the paper. Our analysis of the TPP shows disappointing macroeconomic results as a result of such a richer and more realistic framework, while the discussion above clearly suggests that the more enthusiastic GDP and employment outcomes produced with the standard trade model are mostly the result of heroic assumptions despite the more granular mapping of sectors and economies.

Summarizing, while the GPM is not a trade-only model, TPP is not a trade-only agreement. In fact, TPP reaches areas of the economy where the GPM has many analytical advantages over standard trade models.

* Jeronim Capaldo is Research Fellow at GDAE, Tufts University. Alex Izurieta is Senior Economist at the United Nations Conference on Trade and Development (UNCTAD). The opinions expressed in this note do not necessarily represent those of the institutions the authors are associated with.