Economic Gains and Costs from the TPP

Review of Modelled Economic Impacts of the Trans Pacific Partnership

SUSTAINABILITY
COUNCIL of NEW ZEALAND

Contents

This paper consists of analysis and opinions

prepared for the Sustainability Council by

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Overview [1]

The Trans Pacific Partnership (TPP) bundles standard gains from trade with a wide range of non-trade requirements that set privileges for foreign investors and impose substantial costs on partner countries. More than any previous trade deal, it matters what level of gains can really be expected and whether these exceed costs.

New Zealand is one of twelve Pacific Rim nations participating in the TPP negotiations and its Government's top trade priority is conclusion of the agreement. When estimating the gains, the New Zealand Government has relied on projections by a US modelling team - Petri, Plummer and Zhai. Their work was initially published in 2011 by the East-West Center and then extended in 2012 for the Peterson Institute for International Economics.

The most recent version projects total gains for TPP partner countries of US$374 billion in the year 2025. For New Zealand, the study projects the gains will be US$4.5 billion in 2025, or roughly NZ$5.5 billion.

These figures were constructed by adding together projections for three different types of economic gain in 2025, as set out in the following table.

Source of Economic Gain (for the year 2025)	**TPP Total** ($US bill)	**New Zealand** ($US bill)
1. Intensive-margin trade gains	98	0.8
2. Extensive-margin trade gains	178	2.3
3. Foreign direct investment	98	1.4
Total	**374**	**4.5**

Trade Effects

The first two types of economic gain (intensive- and extensive-margin trade) were estimated using a computer model of the economies making up the TPP. The projected changes are positive because the wide-ranging TPP provisions have been fed into the model as simple efficiency-enhancing cost reductions, with no attempt to account for their downsides - reductions in national sovereignty and regulatory autonomy that are actually central to the TPP. Because these costs are not included in the model, the published results have a one-sided focus that means they do not provide a cost-benefit assessment of the TPP.

Besides excluding the crucial costs, the authors appear to have seriously overstated the size of the projected trade benefits as a result of pushing their analysis into highly controversial and untested territory relative to the established economic literature. They use subjective judgements to model non-tariff barriers by, for example, translating measures to enforce intellectual property rights and copyright protection into simple cost reductions that increase trade in services. Similarly, provisions that allow foreign investors to sue governments in private tribunals, or that block national regulation of banks, are translated by the authors into trade-promoting cost reductions, ignoring the costs of sidelining the courts and regulators of sovereign nations.

[1] The rest of the paper provides more detailed facts and analysis supporting the views summarised here.

Equally controversial is their modelling of the second form of gains - the "extensive margin" of trade - which is claimed to deliver far larger benefits than the first. The basic idea is that an agreement such as the TPP will trigger a wave of new entrants into exporting, by reducing the fixed costs of entering overseas markets. There is no objective way to estimate the size of this claimed effect, so the authors have simply assumed that half the impact of the TPP would be on fixed (as distinct from variable) costs of trading, and that the response by firms in the TPP would be dramatic.

Yet the resulting large gains reported do not appear to have solid analytical foundations. If the modelling had been restricted to using mainstream methods for estimating the gains from trade, the results would have been far smaller.

Timing is also relevant in striking a proper balance. The trade benefits projected by the Petri team take ten years to arrive, whereas the big costs they ignore will come immediately, as TPP deprives national governments of key aspects of sovereignty and chills their policy-making.

Foreign Investment Effects

The remaining benefits projected by the Petri team are from foreign direct investment (FDI) effects, that are claimed to result from an increase in the stock of international direct investment.

The authors have calculated "FDI gains" entirely outside the computer model, by arbitrarily assuming that every dollar of FDI transferred from country to country within the TPP bloc generates a net gain in annual income of 33 cents, divided evenly between the two countries. We are not aware of any economic theory or modelling practice that supports this claim; in effect the authors are saying that simply transferring a dollar of capital from one country to another doubles its productivity. The study's claimed FDI gains – that account for a quarter of the TPP total and a third of those estimated for New Zealand – should be discounted entirely in our opinion.

Total Gains Are Small

Overall, the benefits from the TPP modelled in the study greatly overstate the gains likely to be available. The only quantified benefits the authors have identified that meet standard tests of consistency with established economic theory and empirical evidence are the tariff-related trade benefits that make up an unknown, but small, fraction of those estimated for the first two sources of gains. The remaining claims lack justification.

The gains really in prospect are much smaller than have been claimed by the New Zealand Government, citing this modelling. Less than a quarter of the gains projected by the study for the TPP economies overall appear to rest on solid analytical foundations, and those gains still have to be balanced against the costs that the study has not counted. The gains estimated for individual countries should be similarly reduced.

Even unadjusted, the figures the authors present remain small relative to the GDPs of the TPP partner economies. The gains are a single boost to the economy: they are a recurring annual benefit but they don't change the economy's rate of growth.

Further, the distribution of gains has not been modelled and if they go mainly to the rich while losses are borne by the poor, the TPP could sharply increase income and wealth

inequality. A significant part of the rise in inequality over the last three decades has been widely attributed to globalisation and the TPP can be expected to exacerbate this.

Is the TPP a Net Gain or a Net Loss?

The small gains available makes it all the more important to understand the nature and scale of the costs that the modelling excludes. The TPP will impose direct costs – such as those arising from extensions of intellectual property rights that push up drug bills by blocking or delaying generics from becoming available. But it is provisions that inhibit or prohibit the exercise of national autonomy that should be central to any full accounting.

In its quest to penetrate 'behind the border', the TPP intrudes far further into how governments operate than is necessary to facilitate trade. These 'disciplines' amount to significant restraints on a nation's right to self-determination and the ability to regulate locally to achieve that – and so to limitations on its sovereignty. The most potent element is investor state dispute settlement (ISDS) rights that would allow foreign investors to file a suit against a government in an offshore tribunal if they believed that new regulations would diminish their expected future profits.

ISDS provisions are unnecessary to achieve their stated objective, given that private insurance is available. Other significant TPP proposals that similarly inhibit or prohibit the exercise of national autonomy are equally separable from trade issues. The US insists on bundling them with the trade gains in order to lock in the US designed template for "a managed trade regime that puts corporate interests first", as Nobel prize-winning economist Joseph Stiglitz puts it.

Stiglitz and Jagdish Bhagwati (a leading promoter of free trade and globalisation) are among the prominent economists to have sharply criticised the inclusion of the non-trade provisions and warned of their consequences.

The TPP offers only small quantifiable benefits from trade liberalisation packaged with fundamental, hard-to-quantify losses from ISDS and other limitations on a government's ability to protect the public interest. Whether there would ultimately be a net gain for the peoples of the TPP partner countries seems doubtful at this stage. A proper accounting will be possible only when a full text is made public.

1. Behind the 'Big Sounding Numbers'

The New Zealand government has relied on a series of 'big sounding numbers' – multi billion dollar gains to the economy - as the core of its pitch for why New Zealand should join the proposed Trans Pacific Partnership (TPP) with the US and ten other countries.[2]

These big sounding numbers have generally been taken at face value by political commentators and the media, with very little investigation into to how they were derived, what assumptions underlie them, and what crucial issues may have been left out of the calculations.

Alongside this uncritical acceptance of the superficially-big numbers has gone equally uncritical acceptance of the official characterisation of the TPP as a "free trade agreement" (FTA), as if it is just another traditional trade deal focused on tariff cutting. The TPP is far from this, with only a few of its 29 chapters dealing with traditional trade matters. The bulk of the action is 'behind the border': forcing domestic regulation and legislation into line with a US-designed template, and compelling a wide range of provisions aimed to benefit US legacy corporates in particular (those protecting historic market positions).

Some of the most trenchant criticism of these non-trade elements in the TPP has come from prominent economists concerned at the hijacking of free-trade rhetoric to promote exclusionary and protectionist provisions driven not by economic theory, but simply by the lobbying power of large US corporate interests. Here, for example, is Columbia University professor Jagdish Bhagwati, who for decades has played a leading role promoting free trade and defending globalisation in the GATT, the WTO, and the United Nations:[3]

> The TPP is being sold in the US to a compliant media and unsuspecting public as evidence of American leadership on trade. But the opposite is true, and it is important that those who care about the global trading system know what is happening. …
>
> The TPP is a testament to the ability of US industrial lobbies, Congress, and presidents to obfuscate public policy. … [T]he US government's public-relations

[2] Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, Peru, Singapore and Vietnam. The New Zealand government has declared the TPP its top trade priority: http://www.scoop.co.nz/stories/BU1401/S00416/concluding-tpp-govts-top-trade-priority-says-key.htm

[3] Jagdish Bhagwati, *America's Threat to Trans-Pacific Trade*, Project Syndicate, 30 December 2011, http://www.project-syndicate.org/commentary/america-s-threat-to-trans-pacific-trade. Professor Bhagwati's CV can be found at http://en.wikipedia.org/wiki/Jagdish_Bhagwati and http://www.law.columbia.edu/fac/Jagdish_Bhagwati. His most recent book *Termites in the Trading System* (Oxford University Press, 2008) discusses the deleterious effects of preferential trading agreements such as the TPP.

> machine calls what is in fact a discriminatory plurilateral FTA a "partnership", invoking a false aura of cooperation and cosmopolitanism.
>
> The US has been establishing a template for its Preferential Trade Agreements that includes several items unrelated to trade. …Towards this end, the TPP was negotiated with the weaker countries like Vietnam, Singapore, and New Zealand, which were easily bamboozled into accepting such conditions. …
>
> The PR machine … went into overdrive by calling the inclusion of these extraneous conditions as making the TPP a "high-quality" trade agreement for the twenty-first century, when in fact it was a rip-off by several domestic lobbies.

In a similar vein, here is Joseph Stiglitz (Nobel Prize winner, former World Bank chief economist):[4]

> [T]he negotiations to create a free-trade area between the US and Europe, and another between the US and much of the Pacific (except for China), are not about establishing a true free-trade system. Instead, the goal is a managed trade regime – managed, that is, to serve the special interests that have long dominated trade policy in the West….
>
> … [N]o trade agreement should put commercial interests ahead of broader national interests, especially when non-trade-related issues like financial regulation and intellectual property are at stake….
>
> The reality … is that we have a managed trade regime that puts corporate interests first, and a process of negotiations that is undemocratic and non-transparent.
>
> The likelihood that what emerges from the coming talks will serve ordinary Americans' interests is low; the outlook for ordinary citizens in other countries is even bleaker.

The non-trade provisions proposed for the TPP would impose significant costs on New Zealand, potentially including: higher pharmaceutical expenditure, restrictions on parallel importing, implicit constraints on environmental protection, and reduced restrictions on foreign investment. So more than was the case with any previous trade deal, it matters what the overall balance of benefits and costs is expected to be.

However, rather than providing economic estimates of its own, the New Zealand Government has relied on projections made by a US modelling team - Petri, Plummer and Zhai – which were published initially as a 2011 working paper from the East-West Center[5] and then as a 2012 "policy analysis" from the Peterson Institute for International Economics in Washington DC[6] – a strong globalisation advocate.

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4 Joseph Stiglitz, *The Free Trade Charade*, 4 July 2013, http://www.project-syndicate.org/commentary/transatlantic-and-transpacific-free-trade-trouble-by-joseph-e--stiglitz .

5 Peter A. Petri, Michael G. Plummer, and Fan Zhai, *The Trans-Pacific Partnership and Asia-Pacific Integration: A Quantitative Assessment*, East-West Center Working Papers Economics Series No 119, October 24 2011, http://www.eastwestcenter.org/publications/trans-pacific-partnership-and-

The first version of this work focused on traditional gains from trade while excluding any estimate of the costs of the proposed deal. The resulting one-sided estimate of the value of the TPP to the New Zealand economy was less than a 1% increase in New Zealand's projected GDP by 2025 - US$1.7 billion, or NZ$2.1 billion.

The second version, in 2012, augmented the 2011 model with additional claimed benefits, but still excluded costs. On the basis of this work, the Prime Minister announced that the TPP's value to New Zealand had shot up by over a billion dollars to US$2.9 billion, or NZ$3.5 billion.[7] This figure corresponded to the modellers' "TPP11" scenario for a TPP group that did not include Japan and Korea.

When Trade Minister Tim Groser fielded a raft of detailed Parliamentary questions about the TPP in October 2013, he apparentlyused figures from the modellers' "TPP12" scenario which allowed for Japanese participation.[8] Asked what was the estimated value to New Zealand of the TPP, the minister gave a figure that was more than double the original - US$4.1 billion, or roughly NZ$5 billion, in 2025 – about 2% of projected GDP.[9]

The 2012 published report from the Peterson Institute presented figures for a "TPP track" or "TPP13" scenario that included both Korea and Japan. In this, the projected gains for New Zealand were US$4.5 billion[10].

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asia-pacific-integration-quantitative-assessment . The publication carries a note stating that it is "an unreviewed and unedited prepublication [report] on work in progress".

6 Peter A. Petri, Michael G. Plummer and Fan Zhai, *The Trans-Pacific Partnership and Asia-Pacific Integration: A Quantitative Assessment*, Peterson Institute, Policy Analyses in International Economics 98, November 2012.

7 Prime Minister John Key, 4 December 2012, referring to the website www.asiapacifictrade.org/?page_id=106 . The $2.9 billion number corresponds to reported model results for "income gains including FDI effects" in the "TPP11" scenario; see the workbook "Macro-TPP 20-Nov-12" at http://asiapacifictrade.org/wp-content/uploads/2012/11/Macro-TPP-20-Nov-12.xlsx .

8 The "TPP12" scenario results were reported alongside the TPP11 and TPP13 ones in the sheet "tab-macro' of the online workbook "Macro-TPP-7-Mar-13" at http://asiapacifictrade.org/wp-content/uploads/2013/03/Macro-TPP-7-Mar-13.xlsx (accessed 23 January 2014). The Minister's answer reads in part: "The study estimates GDP gains for New Zealand of US$2 billion in the year 2025 (a 0.9% increase in GDP), with additional income gains of US$2.1 billion predicted from a lift in the terms of trade and greater access to goods and services. Export gains for New Zealand of USD4.1 billion in the year 2025 … are estimated". In the spreadsheet, Groser's figure for GDP change is the difference between cells N11 and E11 and has been rounded up to $2 billion (the spreadsheet figure for baseline GDP was formatted to suppress the decimal places; if they are included the GDP change is $1,7 billion, as shown in Table 1 below). Groser's total income gain is from cell N83, and his figure for export gains is at cell N263. The implicit inclusion of FDI effects in the total income gains is nowhere mentioned in the Minister's answer. Earlier-dated workbooks containing results from the 2012 model results do not include the TPP12 scenario.

9 Tim Groser in response to Parliamentary question for written answer no 13710, lodged on 17 Oct 2013.

10 Petri *et al* 2012 Table 4.1 p.41. The figures in this table correspond to the online workbook "Macro results 1-Oct-2012", at http://asiapacifictrade.org/wp-content/uploads/2012/10/Macro-results-1-Oct-2012.xlsx (accessed 23 January 2014).

The existence of these multiple scenarios means that a confusing array of numbers has been quoted at different times and places, but all the numbers have come from the same authors inserting different assumptions into a single computer model.

Reliance on one set of authors for much of the government's public justification for the TPP means that a great deal rides on the quality of the modelling and the extent to which it lives up to its billing as a "comprehensive quantitative analysis of the potential impact of the TPP" that makes "important contributions from a methodological viewpoint".[11] As neither of the published studies was systematically peer reviewed, and to our knowledge only the first has been the subject of any formal critique[12] (although the 2012 Peterson Institute publication has attracted online criticisms)[13], we have undertaken our own analysis of the model design and results, which is set out in this paper.

The importance of scrutinising this sort of pre-agreement modelling has been emphasised by the Australian Productivity Commission in a detailed review of that country's trade negotiations:[14]

> There are concerns that pre-agreement modelling is used to overstate the benefits likely to be reaped from [trade agreements], and that the assumptions and other qualifications surrounding the modelling tend to be downplayed in public statements by those promoting [trade agreements]. In the Commission's assessment, this leads to unrealistic expectations about what will be obtained, and skews consideration of the merits of proceeding with negotiations….
>
> The approach to conducting feasibility studies used for most previous Australian [trade agreements] has produced overly optimistic expectations of the likely economic effects.

This review focuses first on assessing the results presented in the 2012 Peterson Institute study, and while offering detailed argument, the judgements are our opinions. It then steps back to look at the implications of these conclusions and the broader structure of the TPP.

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11 C. Fred Bergsten, "Foreword" to Petri *et al* 2012, pp.ix and x.

12 A review of the 2011 East-West study findings as they applied to New Zealand was conducted by the New Zealand Institute for Economic Research (NZIER) for the NZ-US Council - a pro-TPP advocacy group. See John Ballingall, *Review of the estimated economic benefits of TPP: NZIER report to NZ-US Council*, NZIER, May 2012. The report was generally supportive, but highlighted the limited coverage of critical policy areas such as Pharmac, investor-state disputes, detailed IP issues, and SOEs, and noted that "The number of assumptions and subjective judgement required to assess how large non-tariff barriers are, and how much they might be reduced, is quite high. This is a necessary evil when trying to complete such analysis, and isn't a criticism of the approach used. But it is an area where different commentators, researcher and policy analysts may have different views."

13 For example see: Public Citizen, *A Shiny Quarter per Day: New TPP Study Uses Sweeping Assumptions to Project Tiny Benefit*, 9 January 2013, http://citizen.typepad.com/eyesontrade/2013/01/a-shiny-quarter-per-day-new-tpp-study-uses-sweeping-assumptions-to-project-tiny-benefit.html .

14 Australian Productivity Commission 2010, *Bilateral and Regional Trade Agreements*, p.292 and p.295 Finding 15.1.

2. The Model Structure and Inherent Limitations

The basic model structure is a typical large Computable General Equilibrium (CGE) model setup, with the world economy broken into 24 regions with 18 sectors in each region. Each of the countries involved in the TPP negotiations is treated as a "region", so the model results are at country level for all current and potential TPP participants. (Hereafter each of the 24 regions will be referred to as a "country".) Agriculture (the sector of immediate interest to New Zealand) is broken into wheat, rice, and "other". For New Zealand analysts, "other agriculture" along with "food and beverages" are the two sectors to watch for gains in traditional exports.

In each country, the market for each of the 18 composite output sectors is cleared by means of price adjustments, which are driven not just by domestic supply and demand but also by the balance of supply and demand in all the other countries (which include 'Rest of the World'). Trade amongst the 24 countries is determined by relative price competitiveness (comparative advantage) but restricted by costs of trading which absorb some of the potential profits from exporting.

Firms that are actual or potential exporters are assumed to face these costs of international trade over and above the costs they incur to serve home demand, and to limit their export production accordingly. Trade agreements are introduced into the model by converting their provisions into numerical reductions on these trade costs, which stimulate increased export production in all sectors with comparative advantage, while leading to falling production of import-competing goods and services in sectors that lack comparative advantage. The model then solves to a new general equilibrium following this reallocation of resources into export production in each country. Comparing the new equilibrium with the baseline, the authors obtain estimates of the changes in GDP, changes in "income" or "welfare", and changes in exports, due to the lower costs that they attribute to the trade agreement.[15]

Unsurprisingly, these projected changes are all positive - since the entire exercise is focused on, and almost entirely limited to, the anticipated positive effects of the TPP agreement. The model does not quantify, nor even provide any sort of rigorous account of, the main negative effects. (Only one minor potentially-negative element is captured in quantitative terms: the possible efficiency-reducing effect of trade diversion as TPP partner countries increase their imports from other TPP countries, displacing in the process imports from cheaper suppliers outside the TPP.[16] This reflects the fact that because the TPP is not a global arrangement but only a regional one, it has "beggar-thy-

[15] The model assumes full employment at all times, which means that neither unemployment nor new jobs are created; the projected income gains come entirely from reallocation of already-employed resources across and within the TPP economies.

[16] This appears in the reports under the heading "Rules of Origin", ROO. Some trade diversion is inescapable in any neoclassical analysis of a regional, as distinct from a global, agreement.

neighbour" effects on the rest of the world and can cause some related efficiency losses for import-using industries in partner countries.)

The authors have employed various techniques to estimate how much each sector's exporting costs are reduced by the detailed provisions of each hypothetical agreement (their study spans several possible scenarios, of which the "TPP13" scenario is the one focused on here). In the case of tariff reductions this process is straightforward in principle, because tariffs enter directly, dollar for dollar, into exporters' costs of serving their markets. In practice there are difficulties in sorting out precisely what tariffs apply in the pre-TPP world and exactly how tariffs would be changed by the TPP, but Petri *et al* have been able to base their work on existing tariff databases combined with other authors' estimates of the utilisation rate for existing tariffs.[17]

Matters are quite different with "non-tariff barriers" (NTBs). Some of these are similar to tariffs in their effects, as is the case for example with burdensome administrative requirements for clearing imported goods. Others are highly controversial, and their conversion into numerical "cost reductions" inescapably involves arbitrary judgments made on a subjective basis. While Petri *et al* initially claim (p.107) to have "develop[ed] new, objective measures", they quickly acknowledge that in fact "like other methodologies, [their approach] rests on arbitrary assumptions" (p.108), that "there is no strong case for the transformation assumptions used to combine different measures" (p109), and that they have relied on the expectation that "the errors implied by these assumptions will partially cancel out" p.109).

Non-tariff barriers – "regulations that raise production costs and create rents for importers, exporters, or both" - are all converted to numerical "tariff-equivalents – a wedge between the exporting country's production costs and the importing country's consumer prices".[18] These tariff equivalents are then considered to be reduced (representing cost reductions for exporting firms) whenever a TPP provision "liberalises" the situation relative to that prevailing under existing trade agreements. Central to this procedure is the presumption that progress towards the US template being promoted through the TPP negotiations – summarised in the 24 issue areas set out in Table 1 of the 2012 study[19] - represents "trade liberalisation" and hence can be entered into the CGE model as cost reductions. The "shocks" entering the model are therefore almost all favourable ones for exports and income, which means that the model's outputs are automatically positive[20].

The fundamental issues at stake in the TPP negotiations - around the sovereignty, autonomy and authority of national governments, for example – are simply not

17 These are described in Appendices C and D, pp.107-120 of Petri *et al* 2012.

18 Petri *et al* 2012 p.31.

19 Petri *et al* 2012 pp.15-19; essentially the same list, but with 27 issue areas, is in Petri *et al* 2011 pp.9-11.

20 In modelling terms this is an example of the "garbage-in-garbage-out" problem: all that the model is doing is providing numerical quantities that are consistent with the modellers' prior views. As Zhai notes (2008 p.584) "trade liberalization always generates a welfare gain in the model".

acknowledged as potential costs. That they would in any case be extremely hard to convert into numerical equivalents to be fed into the model underscores the Australian Productivity Commission's point about the limitations of such models for evaluating trade arrangements, that: "Such an approach does not provide an adequate basis for assessing their merits".[21]

Because of this one-sided focus, the CGE results do not provide a cost-benefit assessment of the TPP. They are merely an accounting of quantified projected benefits, heavily influenced by the modellers' prior judgment that the TPP template translates, with only minor exceptions, to cost reductions that benefit all parties - leaving the costs side of the balance missing. Critical institutional, regulatory, sovereignty, and property-rights issues that are at the heart of the overall TPP deal are absent. This means that, at most, the CGE numbers for gains in income and exports are estimates of the compensation being offered to other countries by the USA (as the dominant player) for the sacrifices of their sovereignty and policy autonomy that the TPP would entail and enforce.

[21] Australian Productivity Commission 2010, *Bilateral and Regional Trade Agreements*, p.295 – Finding 15.1.

3. The Modelled Results

3.1 "Trade Effects"

It is important to appreciate the extent to which the East-West Center's modelling team, in pursuit of ever-bigger numbers, pushed their analysis beyond the bounds of the established literature in international economics. One benchmark is provided by a set of results from an orthodox CGE modelling exercise of the TPP undertaken in 2010 by the New Zealand Institute of Economic Research (NZIER). This reported that:[22]

> Using NZIER's GTAP general equilibrium model of the world economy, a basic estimate suggests gains to New Zealand of around NZ$650 million per year.

This conclusion carried the important provisos that these were:[23]

> Indicative results only. These results are from a scenario where all tariffs amongst TPP members are reduced to zero. In this respect, it's over-optimistic. However, the estimate of benefits is from goods liberalisation only, and doesn't take into account the gains from services liberalisation, investment liberalisation and other dynamic gains from trade. A much more detailed modelling exercise is required to look at multiple potential outcomes and to examine issues such as Pharmac, but this ballpark estimate does at least highlight the potential gains to the NZ economy from liberalisation with the US under a TPP.

NZIER found only between one-third and one-half the US$1.7 billion p.a. gains claimed by the 2011 East-West study, and less than one-fifth the US$4.1 billion of gains claimed in Petri *et* al's 2012 Peterson Institute paper. Allowing for the facts that (i) the NZIER results were in New Zealand dollars whereas those of Petri *et al* are in US dollars, and that (ii) the NZIER results were on a 2010 base whereas the East-West Center team used projections for economic growth in 2025, these are still huge discrepancies which require explanation.

The "big numbers" in the 2012 Peterson Institute study were constructed by adding together three components:

a) "Intensive-margin trade gains";
b) "Extensive-margin trade gains"; and
c) "Foreign direct investment (FDI) effects".[24]

The first two were obtained as outputs from their CGE model, but the FDI effects were calculated entirely outside the model, and so are dealt with separately in the following section of this paper.

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22 John Ballingal, *NZ, the US and trade liberalisation: don't panic!*, NZIER Insight, 14 (2010), p.2. Online at: http://nzier.org.nz/system/files/NZIER%20Insight%2014%20-%20Trade%20liberalisation.pdf

23 Ballingal 2010, footnote 3, p.2.

24 These accounted for respectively 23.2%, 43.7% and 33.1% of the total gains; see Petri *et al* 2012 p.37 Table B4.1.1.

The distinction between the two types of trade effects hinges on the way in which changes in tariffs and non-tariff barriers (NTBs) are introduced into the model. Roughly speaking[25], intensive margin effects are estimated using an "iceberg model" and extensive margin effects arise from what may be described as a "lightning-strike model".[26]

The "iceberg model" is often found in the international economics literature - but is not usually extended to the analysis of NTBs, as Petri *et al* have done via their "tariff-equivalents" exercise. The metaphor of an iceberg captures the central idea: as each tonne of an export good "floats" from the exporting country to the importing one, it melts at a steady rate, so that when it reaches its destination it has been reduced to a smaller volume, and hence something has been lost in transit. A reduction in exporters' costs due to a tariff reduction can be thought of, and incorporated into the model, as a reduction in the rate at which the ice melts – that is, a reduction in the variable cost (the cost per unit sold) of export sales. This increases the returns to the export producer in the same way as an increase in productivity would do.

In a CGE model - designed to make marginal, incremental changes in all markets to keep supply and demand in balance - the iceberg story works well for physical traded goods, and reasonably well for those services that are traded in competitive markets (without the barriers that arise when intellectual property rights, franchising restrictions, or regulatory constraints on market entry are present). The modelled response to changes in variable-costs takes the form mainly of increases in existing exports, which in the Zhai (2008)[27] model means increased sales by firms that are already exporting – hence the term **"intensive margin"** which refers to the **intensification of existing activities**.

The "lightning-strike model", in contrast, is all about fixed costs of exporting. In this story, a trade agreement abruptly cuts trade costs by a fixed amount, confronting the CGE model with a discontinuous one-off shock. Petri *et al* speculate that a cost reduction of this sort will induce the emergence of new export products and new exporting firms from among the economy's existing sectors and firms[28] - hence the term **"extensive margin"** referring to **the extension of economic activity into new fields**.

Figures 1 and 2 below show how switching from an iceberg model (in the 2011 East-West Center study) to a 50-50 combination of the iceberg and lightning models in the

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25 Cf Petri *et al* 2012 footnote 1 to Box 4.1 on p.37; as they note, this is only an approximation to the full detailed story.

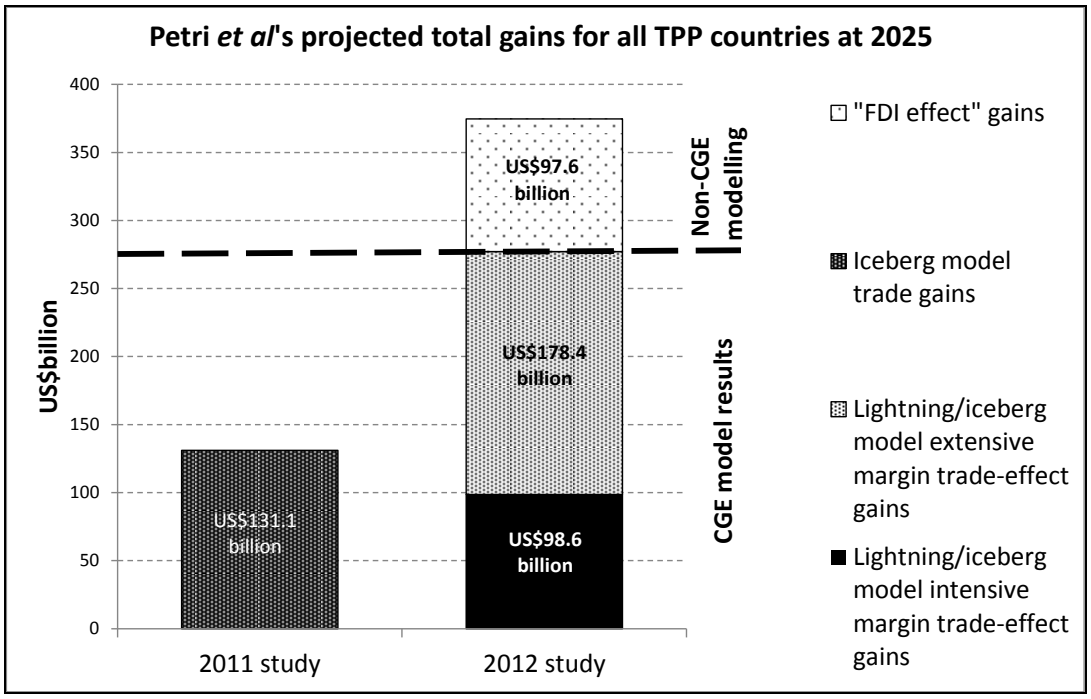
26 This is not a term found in the economics literature but captures the essence of what Petri *et al* are doing in their modelling.

27 The CGE model utilised by Petri *et al* was originally published as Fan Zhai, *Armington meets Melitz: introducing firm heterogeneity in a global CGE mode of trade*, Journal of Economic Integration 23(3): 575-604, September 2008.

28 Heterogeneity of firms in the model is crucial here – since different firms within each sector face different cost curves, reductions in the fixed cost of entering export markets is hypothesised to bring new entry by previously non-exporting firms. This is an application of a model put forward by Marc J. Melitz, *The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity*, Econometrica, 71(6), 1695-1725. 2003.

2012 study[29] more than doubled the estimated "trade effects gains" for the thirteen TPP partner countries (Figure 1) and nearly doubled the estimated trade-related gains for New Zealand (Figure 2). (The gains being discussed here are just the "CGE model results" in Figures 1 and 2; the claimed FDI-effect gains lie outside the CGE exercise altogether and are best ignored, for reasons set out in the following section.)

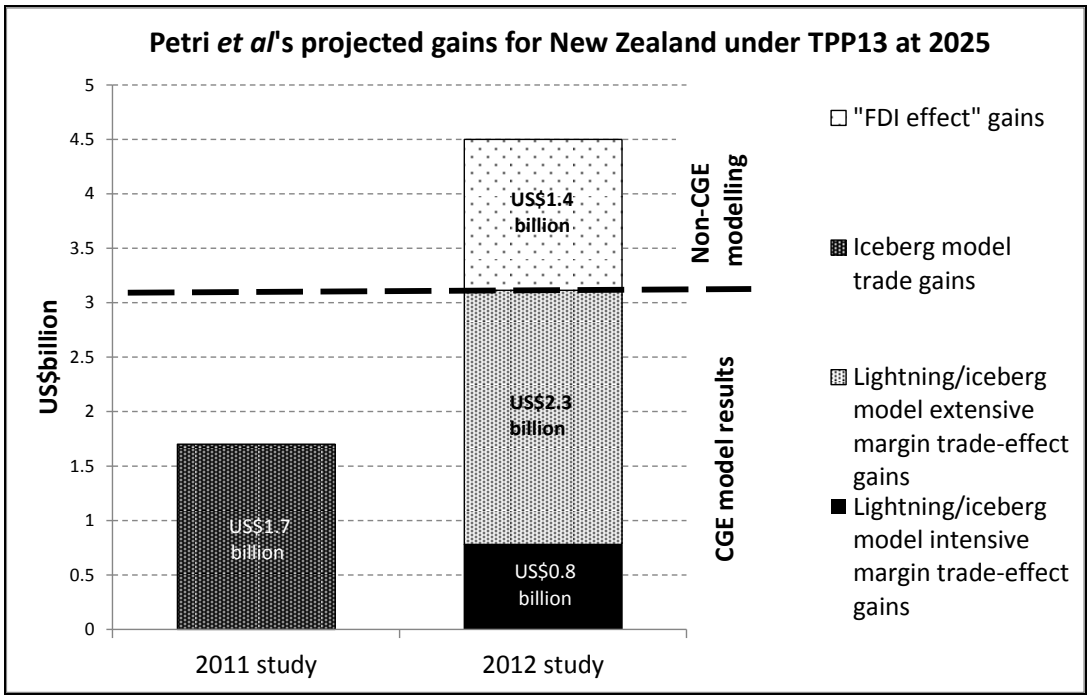
Figure 1 [30]



[29] In the 2012 modelling work the arbitrary assumption was made that all reductions in tariffs and NTBs result in variable and fixed cost reductions in equal proportions; see Petri *et al* 2012 p.129 "we assume that trade barriers affect both variable and fixed costs equally and that liberalization therefore affects both types of costs".

[30] Sources: 2011 from Petri *et al* 2011 p.26 Table 7, total for the seven "TPP track" economies and the six "Two-track economies".
2012 from Petri *et al* 2012 Table 4.1 pp.41-42, disaggregated between trade and FDI effects using the detailed numbers in worksheet "Macro-results-1-Oct-2012.xls" at http://asiapacifictrade.org/wp-content/uploads/2012/10/Macro-results-1-Oct-2012.xlsx (accessed 4 December 2013); and with trade effects disaggregated between intensive and extensive margins using the variable-cost shares for "TPP track economies" and "Two-track economies" in Petri *et al* 2012 Table F.1 p.130.

Figure 2 [31]



Appendix F of the 2012 study confirms that bringing in fixed costs had the effect of doubling estimated trade-related gains:[32]

> Which barriers are liberalized matters because lower fixed trade costs have a particularly strong effect on the extensive margin of trade. If only variable trade costs are reduced, the effects of liberalization affect primarily the intensive margin of trade, that is, increase the exports of firms that already export. This assumption yields results similar to those of standard CGE models….With this specification – similar to those used in conventional CGE models [and in the 2011 modelling work] **- total benefits would be about half as large as under our standard assumptions, with both fixed and variable trade costs reduced**. [Emphasis added]

Although the half-and-half assumption used in the 2012 modelling is here described as "standard", it is nothing of the sort. The assumption that half of the trade costs represented by tariffs and tariff-equivalent NTBs are fixed costs ("associated with entering an export market"[33]) is simply that – an assumption, for which no reason is offered. In relation to tariffs, which are designed to affect variable rather than fixed cost, the assumption seems quite unwarranted.[34] In relation to NTBs, it requires far more

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31 Sources: 2011 from Petri *et al* 2011 p.26 Table 7.
2012 total from Petri *et al* 2012 Table 4.1 pp.41-42, disaggregated between trade effects and FDI effects using the detailed numbers in worksheet "Macro-results-1-Oct-2012.xls" at http://asiapacifictrade.org/wp-content/uploads/2012/10/Macro-results-1-Oct-2012.xlsx (accessed 4 December 2013); and with trade effects disaggregated between intensive and extensive margins using the variable-cost share shown for New Zealand in Petri *et al* 2012 Table F.1 p.130.

32 Petri *et al* 2012 p.129.

33 Petri *et al* 2012 p.31.

34 It is nowhere explicitly stated whether the 50-50 fixed-variable cost assumption was applied to all trade barriers including tariffs (as implied on p.129) or just to NTBs (as might be inferred from

systematic justification than is provided by Petri *et al*. The very large trade effects on the export of US services that are projected by the model under the 50-50 assumption[35] seem to rely particularly strongly on the assumed fixed-cost reductions.

To see in more detail how the fixed-cost assumption drives the model results, it would be necessary to know the cost functions for the various sorts of heterogeneous firms in the model. The only information available about these cost functions is in the original Zhai publication[36], which reported results from a scenario in which fixed trade costs were cut by 50%, but those results cannot reliably be mapped across to the TPP13 exercise.

3.2 Non-tariff Barriers

The central issues at stake in the TPP negotiations are all packaged into Petri *et al*'s catch-all category of "non-tariff barriers" (NTBs). The main innovation in the 2011 modelling exercise was its extension of the iceberg model from its standard application to tariffs on goods to also cover non-tariff barriers on services. Here the iceberg model does not have the intuitive plausibility that it enjoys with tariffs on goods.

Many services are less competitively supplied than basic traded commodities, with a large range of attributes and characteristics that are subject to intellectual property and other brand-protection measures, as well as a variety of anti-competitive practices designed to restrict the entry of competing suppliers rather than to promote open competition, regulatory measures intended to ensure quality of service, and wholly or partly government-funded provision of services. Because of this, the usual economic theory of comparative advantage and gains from trade, which rests on perfectly-competitive assumptions, cannot be simply extended to services trading under conditions of imperfect competition. Indeed, there is no generally-accepted economic theory of gains from international trade in such markets, because of the arrangements protecting intellectual property and other devices which exclude potentially-more-efficient competitors from markets in which incumbent suppliers have established their positions and brands.

Converting non-tariff barriers to tariff equivalents is highly controversial in precisely the areas that are central to the TPP negotiations. An overview of the sort of issues that arise can be obtained from a scan of Table 1 in the 2011 study[37] - noting that 24 of the 26 issue areas listed there were identified as non-tariff barriers to trade[38] and incorporated into the modelling exercise with pro-TPP outcomes treated as reducing trade costs and hence

pp.30-31). Overall, the strong impression is that both types of trade barriers were treated alike; this certainly seems to be the case in Zhai 2008.

35 Highlighted by Box 4.1 in Petri *et al* 2012 pp.38-39.

36 Zhai 2008 pp.581 (equation 4), 587-588,

37 Petri *et al* 2011 pp.9-11.

38 Petri *et al* 2011 p.68 including footnote 30.

yielding "income gains". There is no recognition in the text that "reducing" these "barriers" might have any negative consequences for individual countries.

The sort of institutional changes that were regarded as "reducing barriers" are revealing. The authors noted that "the investment issue area has a large role in determining service NTBs"[39] and the corresponding entry in their Table 1 describes the institutional changes assumed to produce gains under the TPP as follows:[40]

> Require national and [Most Favoured Nation] treatment under international law; bar performance requirements; limit expropriation; require compensation in case of expropriation; ensure free and timely transfers; establish procedures for dispute resolution by international tribunals.

Similarly sweeping assumptions about gains from changes to technical standards, intellectual property rights, government procurement, sanitary and phytosanitary standards, dispute settlement, deregulation of trade in financial services, and "regulatory coherence" are listed in Table 1 - and nearly all have been converted to equivalent-tariff-reductions for the purposes of the modelling.

The authors make passing mention of the distinction between "barriers" that impose productivity losses and those which merely protect economic rents for companies,[41] but evidently treat all their hypothetical barrier reductions as efficiency-enhancing.[42]

The 2011 results were thus heavily weighted towards favourable outcomes by treating services in the same way as competitively-supplied goods. The model converted provisions regarding intellectual property and international investor rights, for example, into equivalent-tariff-reductions as if they shared the mantle of "free-trade" economic respectability. It thereby included a range of neoliberal deregulatory agenda items on investment, financial services, regulatory "coherence" and standards-setting as though these were all suited to analysis as non-tariff barriers to be reduced with no attempt to estimate the cost of the loss of these regulatory measures.

The introduction of fixed-cost elements (the "lightning-strike model") in the 2012 version of the work massively increased the scale of gains attributed to these institutional and regulatory areas, without altering the highly subjective and extremely controversial characterisation of these key issue areas as embodying barriers to trade that can be reduced by imposing the US regulatory and institutional template.

It is noteworthy that the WTO's TRIPS agreement, dealing with intellectual property issues, was based upon the recognition that a balance had to be struck between the desire of large (mainly US) corporate interests to "protect" their IP on the one hand, and the legitimate interests of other countries in maintaining some protection for their own infant

39 Petri *et al* 2011 p.68.
40 Petri *et al* 2011 p.9; Petri *et al* 2012 p.17.
41 Petri *et al* 2011 footnote 27 p.65.
42 See the sentence in the text p.65 to which footnote 27 is appended.

industries and nascent technologies against extinction by the powerful and litigious US industrial lobby. No such need for balance is acknowledged by Petri *et al*; the only respect in which their estimates of "gains" from imposing the US template is constrained is their recognition that less than 100% of the "barriers" they perceive are able to be removed in practice[43]. The regulatory agenda in relation to intellectual property rights is simply stated as:[44]

> Require accession to international treaties; require effective enforcement of criminal and civil penalties in cases of knowing violations; require destruction of pirated or counterfeit goods; proposals on trademarks, geographical indications, copyrights, patents, trade secrets, data for the approval of genetic resources and traditional knowledge. Proposed provisions go well beyond the WTO Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) on copyright, patent, and data exclusivity terms and on enforcement.

The authors concede that these IP proposals are:[45]

> highly controversial, involve pharmaceuticals, copyright-based industries, and online services…. Stricter provisions face strong opposition from importers, competitive producers, national health systems, online service providers, and NGOs.

In a letter to TPP negotiators following a version of the IP chapter being leaked, Stiglitz commented:[46]

> At this point in time, we do not need a TRIPS plus trade agreement, we need a TRIPS minus agreement. The TPP proposes to freeze into a binding trade agreement many of the worst features of the worst laws in the TPP countries, making needed reforms extremely difficult if not impossible.

Another area of "non-tariff barriers" whose elimination is modelled simply as reductions in trade costs is international finance. Here "reduction of NTBs" involves limiting the ability of national governments to regulate their financial sectors (for example by "imposing caps on institutions and transactions"), and requiring them to accept investor-state arbitration to resolve disputes with foreign-owned banks. These are all entered into the CGE analysis as cost reductions for the exporters of financial services, without regard to the growing worldwide realisation that effective financial regulation is essential in the wake of the Global Financial Crisis.

In summary, the modelling work published by the East-West Center and Peterson Institute is grossly simplistic and one-sided in its promotion of the TPP agenda as unequivocally beneficial, and in its dismissal of any suggestion that the measures it counts as solely positive may be delivering major collateral damage to national regulatory and institutional autonomy and identity. The estimated income gains emerging from the CGE modelling, even when massively inflated relative to what a more

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43 The relevant proportional reductions assumed feasible for non-tariff barriers are shown in Table 3.2 p.32 of Petri *et al* 2012: 0.53 for goods and 0.53 for services.

44 Issue 9 in Table 2.2, p.17 in Petri *et al* 2012, column headed "content".

45 Issue 9 in Table 2.2, p.17 in Petri *et al* 2012, column headed "controversies".

46 Joseph Stiglitz, Open letter to TPP Negotiators, December 6, 2013.

orthodox approach would have yielded, remain small relative to GDP (see Table 1 in the following subsection), reflecting two familiar facts:

a) Over half a century of trade liberalisation has already largely captured the bulk of potential gains from cutting tariffs; and

b) A static reallocation of already-fully-employed resources holds out the prospect of only limited welfare gains.[47]

3.3 The Distribution of Gains - Within and Across Countries

The CGE model calculates, once it has settled to its new equilibrium after a shock, a set of market-clearing levels of output for all 18 sectors in each country. Adding up the value of these using the baseline (pre-shock) prices, and comparing the result with baseline GDP, provides an estimate of the change in real GDP due to the shock. This result does not, however, necessarily give a good indication of changes in the welfare of national populations, for three reasons:

- The distribution of the income generated within each economy[48] between local and foreign claimants has to be taken into account before it is possible to evaluate the impact of, say, the TPP on national welfare. With rising foreign direct investment being a central assumption under the TPP, it is clearly very important to know how each country's international investment position changes, with corresponding flows of investment income to be financed out of GDP.

- Within each economy there will be losers and winners. If gains go mainly to the rich and losses are borne by the poor, the TPP could sharply increase income and wealth inequality.

- The post-shock world economy, and each national economy within it, has a new set of relative prices, which means that the purchasing power of each country (the volume of goods and services it can command by trading on the basis of its new GDP at the new rather than the old prices) will have changed by an amount that may be greater or less than the change in GDP

With regard to the first of these the Petri *et al* study is silent, partly because it has not actually modelled FDI changes, but only estimated them in a separate exercise without considering how overseas claims on GDP might affect individual countries' welfare. But some important questions are nonetheless thrown up. For example: New Zealand's net international investment position in 2025 without the TPP is projected as minus US$127 billion in 2025 (US$29 billion of outwards FDI stock and US$156 billion of inward

[47] The gains in the neoclassical analysis are restricted to the relevant "Harberger triangles" which do not readily yield large numbers.

[48] Meaning, its GDP valued at the new prices.

stock[49]). Implementation of the TPP is projected to weaken New Zealand's net position by US$7 billion, to US$134 billion (US$30 billion of outwards FDI and US$164 billion of inwards stock[50]). This additional US$7 billion of FDI would have to be serviced, draining off part of any increase in national income. The issue of how much of any income gains might in practice be swallowed up by overseas investors is a real one but is left entirely unexplored by the Petri team.

Turning to the second issue above – the distribution of gains and losses within the local economy - domestic distributional effects are not modelled at all. Any gains and losses could be very unevenly distributed, and thus worsen inequality. The IMF, OECD and many others attribute a significant part of the increases in inequality over the last three decades to globalisation, and there seem good grounds for expecting the TPP to work in the same direction, towards greater inequality. However the issue is not even mentioned in any of the work by Petri *et al.*

In the third area - the effect of price changes in reallocating income gains across countries - the Petri *et al* modelling work has produced some quite startling but not always plausible results. The measure used to show welfare gains is "equivalent variation" – the amount by which baseline GDP at baseline prices would have had to be increased to match the bundle of goods and services commanded by each country under the TPP scenario. Because the detailed sectoral information required to calculate equivalent variation has been produced by the CGE model only for the trade effects of the TPP – not for the "FDI effects" which were estimated separately – the equivalent-variation exercise can be presumed to have been limited to the trade effects, with FDI effects later added on as lump-sums to obtain total projected income (welfare) gains. Table 1 on the following page compares, for all 13 TPP countries, the model outputs for GDP changes and the "welfare" changes due to trade effects.

Recalling that the only thing opening up a gap between GDP changes and trade-effects gains is relative-price changes, there are some remarkably large differences between the two measures. The USA, for example, increases its GDP by only US$27 billion but picks up an additional US$14 billion of "equivalent variation" from price changes. Japan increases GDP by $10 billion but gains an additional US$66 billion from price changes. Korea and Vietnam each increase GDP by over US$90 billion but lose more than half of this to price changes; Mexico similarly loses out. Overall the TPP partners lose $23 billion of their increase in GDP through an "equivalent variation" calculation that remains obscure. However, the last column in Table 1 showing the difference as a % of GDP is a reminder that the modelled changes are tiny relative to overall income, with the sole exception of Vietnam.

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49 Petri *et al* 2012 Tables B.4 and B.5, pp.1032-105,

50 Spreadsheet "Macro-results-1-Oct-2012.xlsx" at: http://asiapacifictrade.org/wp-content/uploads/2012/10/Macro-results-1-Oct-2012.xlsx .

Table 1: Model results for GDP and welfare changes by country [51]

	Change in GDP	Income gains: trade effects excl FDI	Difference	Difference as % of GDP
	(US$ bill)	(US$ bill)	(US$ bill)	(%)
United States	27.3	41.4	14.1	0.1
Australia	2.2	6.3	4.1	0.3
Canada	2.8	7.5	4.7	0.2
Chile	-0.9	2.2	3.1	1.1
Mexico	31.5	20.7	-10.8	-0.5
New Zealand	1.7	3.1	1.4	0.7
Peru	6.3	4.4	-1.9	-0.6
Brunei	-0.1	0.2	0.3	1.6
Japan	9.6	75.3	65.7	1.2
Korea	91.4	39.5	-51.9	-2.5
Malaysia	26.3	25.5	-0.8	-0.2
Singapore	7.9	6.0	-1.9	-0.5
Vietnam	95.9	45.0	-50.9	-15.0
Total TPP13	**302.0**	**277.0**	**-24.9**	**-0.1**

New Zealand, it will be noted, is promised income gains of $3.1 billion on the basis of a GDP increase of only US$1.7 billion, a truly remarkable outcome. Overall, developed countries seem to benefit from relative-price changes while less developed ones lose.

3.4 Summing Up

In terms of the established literature on trade liberalisation, the 2012 Peterson Institute modelling pushes far beyond the established frontiers into highly controversial and untested territory, where subjective judgments by the modellers have large impacts, and the gains from trade estimated by normal mainstream methods make up only a minor part of the picture. (In the case of New Zealand, for example, only one-quarter of the total "trade effects" gains that are projected derive from variable-cost reduction; three-quarters of the trade-related gains come from the unorthodox and very contestable innovations introduced for this particular study.) As the authors point out (2012, p.2) they "apply new tools of trade theory" but it is quite unclear whether these new tools have any solid

[51] Source: Calculated from the spreadsheet at http://asiapacifictrade.org/wp-content/uploads/2013/03/Macro-TPP-7-Mar-13.xlsx accessed January 2014.

theoretical or evidential grounding, nor (if so) whether their application has been done in a way that the economic modelling community would accept as correct.

Even having undertaken this extremely ambitious and technically contentious extension of the scope of the original Zhai (2008) CGE model, the East-West Center team was left with numbers that are trivial both relative to the gains from trade secured from past liberalisations under the GATT, and relative to the GDPs of the TPP partner economies. As Nobel prize-winner Paul Krugman recently commented when asked to consider the TPP in his New York Times column:[52]

> I've been having a hard time figuring out why this deal is especially important. The usual rhetoric — from supporters and opponents alike — stresses the size of the economies involved: hundreds of millions of people! 40 percent of global output! But that tells you nothing much. …
>
> [M]y starting point for things like this is that most conventional barriers to trade — tariffs, import quotas, and so on — are already quite low, so that it's hard to get big effects out of lowering them still further.
>
> The deal currently being negotiated involves only 12 countries, several of which already have free trade agreements with each other. It's roughly, though not exactly, the TPP11 scenario analyzed by Petri *et al*. They're pro-TPP, and in general pro-liberalization, yet even so they can't get big estimates of gains from that scenario — only around 0.1 percent of GDP [for the US]. And that's with a model that includes a lot of non-standard effects.

The projected gains are a single boost to the economy: they are a recurring annual benefit but they don't change in the economy's rate of growth. Timing is also relevant in assessing gains and costs. The trade benefits projected by the Petri team take ten years to arrive (by when world trade flows may have changed significantly), whereas the big costs they ignore will come immediately, as TPP deprives national governments of key aspects of sovereignty and chills their policy-making.

With respect to gains through reduced barriers to agricultural trade (those of most interest to New Zealand), long phase in periods for the changes have been common. They are also more speculative than many other sectors, due to the political sensitivities accompanying any relaxation of border restrictions for these. Mexican Economy Minister Ildefonso Guajardo stated in January 2014 that tariff offers tabled by TPP partner countries covered an average of 80 percent of tariff lines, but that "the 'heart of the issue' comes down to roughly 5 percent of tariff lines covering the most sensitive goods, which include many agricultural products and automobiles".[53]

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52 Paul Krugman, *TPP*, December 12 2013, http://krugman.blogs.nytimes.com/2013/12/12/tpp/ . In a subsequent post, Krugman acknowledges that the real action in the TPP may well lie elsewhere than in the trivial gains from trade *per se* – see: *TPP and IP: a brief note*, December 14 2013, http://krugman.blogs.nytimes.com/2013/12/14/tpp-and-ip-a-brief-note/ .

53 *Mexican Minister Says TPP Could Finish By April; U.S., Japan Tariff Offers Needed*, Daily News, 22 January 2014, on Insidetrade.com

4. Foreign Direct Investment Effects

One-quarter of the quantified collective benefits from the TPP claimed in the 2012 study, and one-third of the projected gains for New Zealand, are "FDI effects"[54] resulting from an increase in the stock of international direct investment that is projected to be stimulated by the TPP. Here the authors' analytical approach lies well outside the bounds of what could be justified by rigorous economic theory or modelling practice.

Their analysis proceeds in two steps. First, they estimate increases in FDI by country, then they apply a multiplier to the estimated changes in FDI to obtain projected income gains for each country.

To estimate changes in FDI stocks, they start by asking what each country's stock of FDI would be in a world without any barriers. For this purpose they use a regression equation showing FDI as a function simply of three things: a country's GDP (that is, the size of its economy), its GDP per capita (that is, its level of development), and its rank in the World Bank's "Doing Business" table (measuring "investment climate").[55] For each country, the difference between its actual level of inward FDI and the level predicted by the regression equation is labelled the "unexplained potential" for increasing inward FDI stock "that could be achieved if the gap between the host country's inward stocks and international norms were reduced".[56]

The regression equation is also used to estimate by how much each country's FDI level would increase if its "Doing Business" rank were to be at the 90th percentile level; this is described as the country's "explained potential increase in inward FDI". A "well-performing country" is one which reduces both explained and unexplained potential increases to zero.[57] The TPP is assumed to be capable of achieving two-thirds of the potential – that is, of moving each country two-thirds of the way towards "well-performing" status.[58]

The increases in FDI projected by Petri *et al* are therefore calculated completely outside their CGE model, by a procedure that has a large arbitrary component tying the TPP to FDI changes. The proposition that signing the TPP will radically change the amount of FDI is assumed rather than tested, and the authors cite no research on empirically-observed links between formal international agreements and actual investment changes.[59]

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54 See Figures 1 and 2 above.

55 Petri *et al* 2012 pp.122-123. The details of the regression exercise are not reported, so the results have to be taken on trust.

56 Petri *et al* 2012 p.122.

57 Ibid.

58 The two-thirds figure is simply assumed; see Petri *et al* 2012 p.123.

59 A 2003 World Bank study found that bilateral investment treaties had minimal measurable effects on FDI; see Mary Hallward-Drimeier, *Do Bilateral Investment Treaties Attract Foreign Direct Investment? Only a Bit … and They Could Bite*, August 2003, http://elibrary.worldbank.org/doi/book/10.1596/1813-9450-3121 .

The real problems arise, however, in the second stage of the analysis – the application of an income multiplier to changes in FDI stocks.

Petri *et al* have in this next stage calculated "FDI gains" by arbitrarily applying an assumed annual return of 16.67% to every dollar of increased inward FDI stock and every dollar of increased outward FDI stock for each country. That is, they claim that New Zealand (along with all the other TPP countries) obtains a net gain in annual income of 16.67% of every dollar of FDI invested in New Zealand, and an equal 16.67% from every dollar invested by New Zealand in the other TPP economies. This assumed symmetry of gains means that every dollar of FDI from country to country within the TPP bloc is assumed to generate an increase in output of 33.33 cents, all of which is counted as net gain that is split 50-50 between the two countries that are party to each FDI transaction.

Neither the main text of the 2012 Peterson Institute paper, nor the authors' spreadsheet of model outputs dated October 2012, make clear to the casual reader the arbitrary use of this simple rule of thumb. The key information is contained in a brief mention on page 125 in Appendix E of the 2012 published paper, noting the adoption of "benefit coefficients of 1/6 for both outward and inward changes in FDI stocks" and a "total benefit coefficient" of $^{dW}/_{dq}=^{1}/_{3}$.[60]

If one were talking about net increases in total capital stock resulting from increased aggregate saving, numbers of this magnitude might be relevant. Around the world and across recent history the incremental capital-output ratio (ICOR, the inverse of the marginal product of capital) in advanced economies tends to lie around three – that is, each dollar added to the capital stock generates roughly one-third of a dollar of additional GDP per year.

But an increase in FDI stock is not the same thing as an increase in capital stock. At each point in time the global capital stock, and its ownership, are determined by accumulated past savings. All that international investment does is to reallocate capital and its ownership across national boundaries, potentially picking up in the process some efficiency gains, and creating a variety of collateral external effects (both positive and negative). For a single country, inward FDI may increase that country's capital stock relative to what it would have been without FDI, and that additional capital may exhibit the usual incremental capital-output ratio of 3; but the other side of the story is that the country from which the FDI is sourced sees its capital stock reduced by the same amount, and its output reduced accordingly. The only net gain in world output and income is the difference between the marginal product of capital in the host country and that in the

[60] See also the latest spreadsheet of results, dated March 2013, at http://asiapacifictrade.org/wp-content/uploads/2013/03/Macro-TPP-7-Mar-13.xlsx , which contains (line 398, columns C and D) the key figure of 0.167 (actually 1.666666 recurring) that has been used to derive the income gains from FDI.

source country.[61] Only if the TPP were to result in large FDI flows from outside the TPP group into the TPP economies would the result be a net gain in capital stock for the latter at the expense of the former. Insofar as Petri *et al* have confused FDI with net increases to capital, they may have fallen victim to a fallacy of composition, imagining that simply shifting a unit of investment from one country to another can generate global output increases on the basis of the incremental capital-output ratio. If so, they have committed the fundamental error of taking a partial-equilibrium approach (the potential effect of FDI for a single country that is a capital importer) and applying it at global level as though every dollar of international investment adds to the global capital stock. Such an error should have become immediately obvious if they had inserted their FDI module into the CGE model – a basic consistency check which they do not appear to have undertaken.

Even at the single-country level of partial-equilibrium analysis, Petri *et al's* approach is flawed, because not all inward FDI boosts a country's capital stock. A large part of FDI in the modern global economy involves takeovers - changes in ownership of existing capital assets – not creation of new ones. In many cases, foreign buyers have taken control of formerly public assets during privatisation programmes or simply acquired existing privately held companies. In addition, where new firms established by FDI have been successful in competing away the markets of existing domestically-owned firms, the exit of those firms and associated write-offs of domestic capital stock will mean that local capital stock increases by less than the amount of FDI.

These considerations are relevant to the Petri study, given that the approach the authors take to projecting increases in FDI stocks from TPP-driven liberalisation measures starts from global estimates of the stock of FDI - taken from the IMF's Coordinated Direct Investment Survey.[62] This stock is estimated on the basis of standard balance-of-payments methodology, under which:[63]

> direct investment arises when an investor resident in one economy makes an investment that gives control or a significant degree of influence over the management of an enterprise that is resident in another economy.

The "baseline FDI stock" from which Petri *et al* start therefore includes the outcomes of takeovers of existing firms in the same basket as new enterprises started from scratch by foreign investment. A review of the data shows that global FDI stocks have risen far more rapidly than global capital stock, as would be expected given the vast amount of takeover activity associated with FDI. Petri *et al* effectively acknowledge this when they

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61 This is clearly set out in the canonical neoclassical analysis of foreign direct investment, G.D.A. MacDougall, *The benefits and costs of private investment from abroad: a theoretical approach*, Economic Record 36(73): 13-35, March 1960, at pages 15-16 where he points out that "Australia's gain [is] Britain's loss from foreign investment in Australia." ("Britain" was used by MacDougall to refer collectively to all foreign countries investing in Australia.)

62 Petri *et al* 2012 p.121.

63 http://www.imf.org/external/np/sta/cdis/ . See also IMF Statistics Department, *The Coordinated Direct Investment Survey Guide*, March 2010, at http://www.imf.org/external/np/sta/cdis/pdf/2009/120109.pdf .

project FDI stocks to rise from 33% of world GDP in 2010 to 55% of world GDP in 2025.[64]

In general, therefore, it would be entirely inappropriate to assume that each dollar of FDI is a dollar of net additional capital stock even at the level of individual countries.

The above discussion has been intended to demonstrate that the conventionally-familiar magnitude of the capital-output ratio could not have provided any basis for the arbitrary "FDI effect" assumptions made by Petri *et al*, and to further show why their assumption of a 33.33% annual output gain from each dollar of FDI is wildly improbable.

In fact Petri *et al* did not put forward the ICOR as their theoretical underpinning; instead they appear to have relied on a seriously flawed partial-equilibrium exercise in the course of which they simply attributed - by assumption - their 33.3% net output contribution from FDI, and then – again arbitrarily - assumed this additional output to be split half-and-half between the investing economy and the host economy[65], without providing a credible theoretical or empirical basis for these numbers.

Their theoretical exercise, set out in Appendix E of the 2012 paper, involves confusion between deadweight loss and distribution of the product. At the margin, investment barriers that deter FDI may create deadweight losses by causing a country's output to be less than could have been achieved (though allowance would have to be made for any external effects from those barriers; for example they may encourage increased saving and investment by home residents, and may deter certain damaging categories of FDI such as speculative capital flows). However, inside the margin, when dealing with FDI that has actually taken place despite the barriers, the effect of a wedge between the marginal product of capital and the return to foreign investors is simply to redistribute income away from foreign investors into the hands of other, local economic agents. Petri *et al* erroneously apply the concept of deadweight loss to what is simply a loss of foreigners' profits for the benefit of other claimants. Economically- and mathematically-literate readers are invited to check for themselves the specification of equation E.5 on page 124, its basis in Figure E.1 on the same page, and the consequent errors in Equation E.7 on page 125.

The study in effect credits the TPP with the power to create new output (rather than greater profit)[66] from already-existing FDI, which gives a veneer of analytical plausibility to its extraordinary attribution of extremely high output gains from increases in FDI stock. The figures for projected "FDI effects" are however entirely arbitrary, and appear to be plucked from thin air.

64 Petri *et al* 2012 p.122 second paragraph.
65 Petri *et al* 2012 p.125.
66 This "missing output" is the term *Bq* in their Equation E.5 and the rectangle marked *Bq* in Figure E.1.

Since these effects account for 26% of the total projected income gains across the "TPP13" economies, discounting them entirely (which at this stage is the most appropriate course for readers to take) produces quite dramatic reductions in the claimed benefits from the TPP of $374 billion.[67] For New Zealand, the proportionate reduction is even greater as the assumed gains from FDI make up 31% of the estimated $4.5 billion total.[68]

[67] Petri *et al* 2012 Table 4.1 pages 41-42, figure obtained by summing the income gains for the seven "TPP track economies" plus the six "two-track economies" – the thirteen countries in the "TPP13".

[68] Petri *et al* 2012 Table 4.1 p. 41.

5. Does the TPP offer Net Gains or Net Losses?

The United States is seeking to bundle gains from trade liberalisation with a wide range of special privileges for foreign investors and IP exporters. Those special corporate privileges will impose substantial costs on other partner countries and threaten to "chill" their ability and willingness to regulate in the interests of their home populations. The TPP is framed as a job lot such that: 'if you want a free trade arrangement with the US, you need to concede these costs upfront as the price of accession'. So will the gains exceed the costs?

Our review has demonstrated that the estimates of gains from the TPP produced by Petri *et al* are unreliable, and that the real potential for gains is far smaller than they estimate. The only quantified benefits the authors have identified that meet standard tests of consistency with established theory and empirical evidence are the tariff-related trade gains that make up an unknown, but small fraction of the gains identified in the 2011 study. The remaining components of the 2011 "gains"[69], along with all the additional gains reported in the 2012 Peterson Institute study[70], lack credibility.

The gains really in prospect are therefore much smaller than have been claimed by the New Zealand Government, citing this modelling.[71] Less than a quarter of the gains projected by the authors for the TPP economies overall rest on solid analytical foundations, and those gains still have to be balanced against the costs that the study has not counted. The gains estimated for individual countries should be similarly reduced.

This makes it all the more important to understand the nature and scale of the costs that the modelling excludes. The costs side of the ledger comes in two forms:

- Readily visible direct costs, such as those applying to extensions of intellectual property rights beyond the protections offered by global treaties; and
- Provisions that inhibit or prohibit the exercise of national autonomy, some of which carry direct contingent costs.

As the NZIER review highlighted, CGE models are not suitable for estimating such costs:[72]

> It is … difficult – if not impossible – to use CGE models to examine some of the TPP policy issues that are attracting a lot of attention from critics of the agreement, such as investor-state dispute settlement, the potential risks to Pharmac, plain-packaging cigarettes, etc.

69 That is, the NTB-related gains in services.

70 That is, most of the claimed extensive margin trade gains, and all of the FDI gains.

71

72 John Ballingall, *Review of the estimated economic benefits of TPP: NZIER report to NZ-US Council*, NZIER May 2012, p.2.

Other methods for cost estimation will still struggle due to a series of limitations including: the secrecy surrounding the negotiations, the range of potential outcomes, and the fundamental difficulties presented in any attempt to put a monetary value on certain aspects of public policy. But even if the costs are difficult to quantify, it is clear there is much at stake.

The New Zealand single desk pharmaceutical buyer Pharmac is a key example of the potential for additional direct costs under the TPP. One of the TPP proposals would see an extension of the time before cheaper generic drugs could be substituted, and so would require additional government funding to deliver the same health outcomes.[73] A recent review of restrictions on generic drugs under the free trade agreement between Australia and the US estimated that these were increasing costs under Australia's Pharmaceutical Benefits Scheme by an additional $200 million a year.[74] This example provides a clear indication of the potential scale of just one such TPP proposal - and there are multiple proposals affecting Pharmac alone.

However it is the second type of cost – those that inhibit or prohibit the exercise of national autonomy – that should be central to any full accounting. In its quest to penetrate 'behind the border', the TPP intrudes far further into how governments operate than is necessary to facilitate trade.[75]

> The TPPA … is a direct assault on our right to decide our own future. Some twenty-nine chapters would become a rulebook that says: *how* our governments should make their domestic policy and regulatory decisions; the *priorities* governments must consider in making these decisions; the *substance* of many of those policies and laws; and the right of foreign states and corporate interests to *participate* in our process, into the indefinite future. These 'disciplines', as such rules are known, would apply across the panoply of public policy.

The 'disciplines' reach into areas as diverse as:

- Requiring state owned enterprises (SOEs) to be structured so that they are competitively neutral to alternative foreign suppliers;
- Providing foreign investors with equal access to government procurement contracts; and
- Changing how governments organise their policy development processes, including requirements under "regulatory coherence" provisions for foreign investors to be consulted in advance on proposed changes of law and regulation.

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73 Deborah Gleeson, *Negotiating our health at TPP talks*, The Drum, 20 November 2013: http://www.abc.net.au/news/2013-11-20/gleeson-negotiating-our-health-in-tpp-talks/5105300

74 Peter Martin, *Drug patents costing us billions*, Sydney Morning Herald, 2 April 2013, http://www.smh.com.au/national/health/drug-patents-costing-us-billions-20130402-2h52i.html

75 Jane Kelsey, *Hidden Agendas: What We Need to Know About the TPPA*, BWB Texts, 2013, p.1.

Examples of particular limitations the proposed 'disciplines' would engender include:[76]

- The state could not preferentially "Buy New Zealand Made";
- There would be serious constraints on the government using publicly owned entities to advance policy objectives;
- No preference could be given to having essential services run by local or public service providers;
- The ability to restrict foreign investors from acquiring local land and businesses would be lost for purchases below a certain threshold – potentially $100 million;
- Specific IP proposals would impose charges on temporary internet copies, extend copyright terms, and curb parallel importing; and
- TPP countries could not restrict transfers of capital so that it would be much harder for governments to control speculative or destabilising capital flows.

Ultimately, the above amount to significant restraints on a nation's right to self-determination and the ability to regulate locally to achieve that, and so to its sovereignty. The most potent element of the overall package of measures is the investor state dispute settlement (ISDS) rights that provide an enforcement mechanism. These would allow foreign investors to file a suit against a government in an offshore tribunal if they believed that government actions had diminished their expected future profits.[77] There are no rights of appeal on judgements from these tribunals even though they can effectively usurp a nation's courts.[78] Stiglitz sees the intended effect of these provisions as much more than just protecting investor capital:[79]

> Advocates of such agreements claim that they are needed to protect property rights. But … [t]here is no reason that foreign-owned property should be better protected than property owned by a country's own citizens….
>
> [T]hose supporting the investment agreements are not really concerned about protecting property rights, anyway. The real goal is to restrict governments' ability to regulate and tax corporations – that is, to restrict their ability to impose responsibilities, not just uphold rights. Corporations are attempting to achieve by stealth – through secretly negotiated trade agreements – what they could not attain in an open political process….

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76 Jane Kelsey, *Hidden Agendas: What We Need to Know About the TPPA*, BWB Texts, 2013; and briefings at: http://www.itsourfuture.org.nz/resources/

77 A leaked version of the TPP's investment chapter can be found at: http://www.citizenstrade.org/ctc/wp-content/uploads/2012/06/tppinvestment.pdf For an analysis of these provisions, see: Public Citizen, *Fair and Equitable Treatment" and Investors' Reasonable Expectations: Rulings in U.S. FTAs & BITs Demonstrate FET Definition Must be Narrowed*, September 2012, p.3. http://www.citizen.org/documents/MST-Memo.pdf

78 The New Zealand Government says its ability to regulate in the public interest is not at risk because this will be specifically protected in the TPP text. But a leaked draft of the provisions uses wording that has proven unreliable in defending other governments. See Sustainability Council, *The TPP's Threat to the Environment*, April 2013, http://www.sustainabilitynz.org/wp-content/uploads/2013/08/TheTPPThreatToTheEnvironment2013.pdf and http://www.citizen.org/RDC-vs-Guatemala

79 Joseph Stiglitz, *South Africa Breaks Out*, 5 November 2013, http://www.project-syndicate.org/commentary/joseph-e--stiglitz-on-the-dangers-of-bilateral-investment-agreements

> … investment agreements enable companies to sue the government over perfectly sensible and just regulatory changes – when, say, a cigarette company's profits are lowered by a regulation restricting the use of tobacco….
>
> Even when developing-country governments win the suits (which have proliferated greatly in the last 15 years), the litigation costs are huge. The (intended) effect is to chill governments' legitimate efforts to protect and advance citizens' interests by imposing regulations, taxation, and other responsibilities on corporations.

The European Union has begun negotiations with the US on a parallel agreement to the TPP and the proposal for it to contain ISDS provisions has drawn sufficient concern that the European Commission has announced it will publicly consult on proposed text. In the process it noted that:[80]

> Some existing arrangements have caused problems in practice, allowing companies to exploit loopholes where the legal text has been vague. … I have been tasked by the EU Member States to fix the problems that exist in current investment arrangements … .

But patching up ISDS provisions just makes for a 'less bad' outcome. ISDS provisions are wholly unnecessary to achieve the stated objective of guarding against expropriation and ensuring fair and equitable treatment. The TPP is to be a treaty between governments and it already provides for one government to take a dispute against another. There is no need to provide parallel rights for foreign investors who can take out private insurance under standard products if they are not convinced their government will protect treaty rights. Nor are such rights justified on the grounds that they meaningfully promote foreign investment: the absence of ISDS provisions does not result in any statistical variation in the pattern of foreign investment according to the Australian Productivity Commission - which recommends against incorporating them.[81]

ISDS rights are thus completely separable from the trade gains in prospect. But the US insists on bundling them with the trade gains in order to lock in the US-designed template for "a managed trade regime that puts corporate interests first", as Stiglitz puts it. Other significant TPP proposals that similarly inhibit or prohibit the exercise of national autonomy are equally unnecessary to secure gains from trade.

The TPP offers, in summary, only small quantifiable benefits from trade liberalisation packaged with fundamental, hard-to-quantify losses from ISDS and other limitations on a government's ability to protect the public interest. Whether there would ultimately be a net gain for the peoples of the TPP partner countries seems doubtful at this stage. A proper accounting will be possible only when a full text is made public.

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80 European Commission, *Commission to consult European public on provisions in EU-US trade deal on investment and investor-state dispute settlement*, Press Release, 21 January 2014.

81 Australian Productivity Commission 2010, *Bilateral and Regional Trade Agreements*, p.269.