

*The Art of the*

# TRADE DEAL

QUANTIFYING THE BENEFITS OF  
A TPP WITHOUT THE UNITED STATES

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# EXECUTIVE SUMMARY

The United States' withdrawal from the Trans-Pacific Partnership (TPP) agreement supposedly signalled the demise of the pact – and with it any hope for Canada to close the trade agreement gap with its major Asia-Pacific competitors anytime soon.

But as with Mark Twain, the reports of its death have been greatly exaggerated.

Throughout early 2017, the remaining 11 TPP signatories (TPP11) have forged on with ratification of the deal in their own countries. Rather than killing the agreement, the withdrawal by the U.S. – and the accompanying “America First” trade rhetoric from the Trump administration – has alarmed and, in some cases, motivated, the remaining signatories. In a sudden and sharp shift of position for many, the remaining TPP countries are now focused on how to proceed with their own trade pact without the U.S.

The case to move ahead on a TPP11 has largely been a political response to the Trump administration's intent to replace inclusive multilateral agreements with one-on-one negotiations on terms essentially dictated by, not negotiated with, Washington, D.C. Opposition to this protectionist U.S. agenda makes a compelling political argument. However, a quantifiable case for the remaining 11 countries to inform discussions on whether to press on with the TPP minus the U.S. has been noticeably absent from the discussion.<sup>1</sup>

This report begins to fill that gap. Our modelling and analysis shows how Canada and other TPP signatories would fare under a TPP11; what the U.S. stands to lose; and, how the agreement would affect different sectors of the economy, including how changes in one sector will impact other sectors. The findings provide quantitative evidence to each country as it decides whether to forge ahead on the pact without the U.S.

The evidence, in turn, raises new potential outcomes that must be considered either prior to ratification or in the future in the context of implementation and possible re-entry of the U.S. into the pact. Is the endgame of a TPP11 solely its economic benefits, primarily in trade in goods and services? How should the eleven TPP countries deal with issues on which U.S. policy is shifting? Should potential losses for the U.S. from opting out be used to try and bring the Americans back to the TPP table to regain the additional benefits for all (and avoid aggressive bilateral talks)? If so, what changes, if any, should be made to the pact to either facilitate the Americans' return to the table or, on the other hand, to try and extract concessions from them as a price for re-entry?

These questions will be dealt with in a subsequent report. But their answers start with understanding the economic impacts of a TPP11.

<sup>1</sup> An early look at modelling impacts is provided in Kawasaki (2017)

# THEN & NOW

## *Economic impacts of TPP11 and TPP12*

### TPP11 COUNTRIES

Australia

Brunei

Canada

Chile

Japan

Malaysia

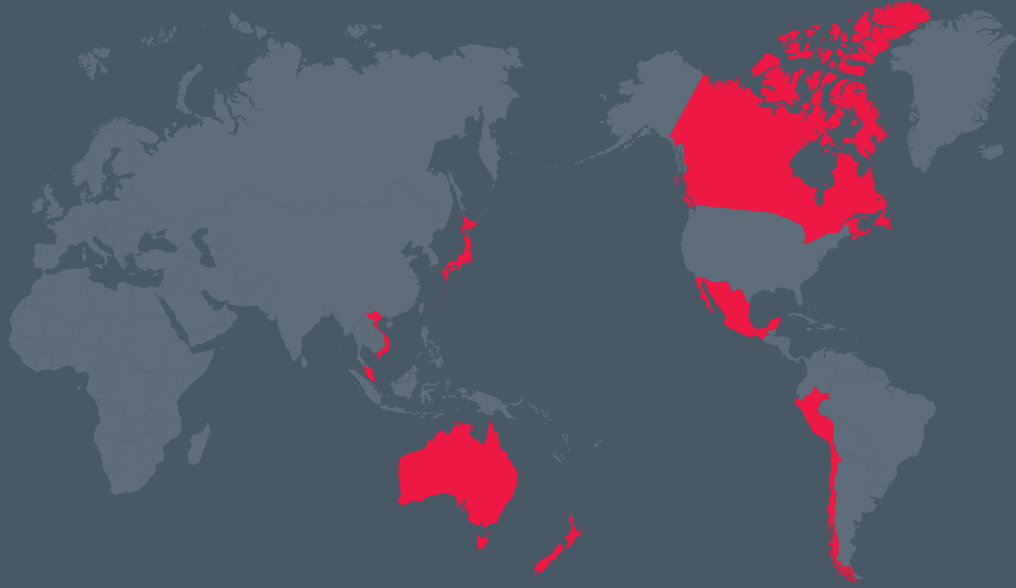
Mexico

New Zealand

Peru

Singapore

Vietnam



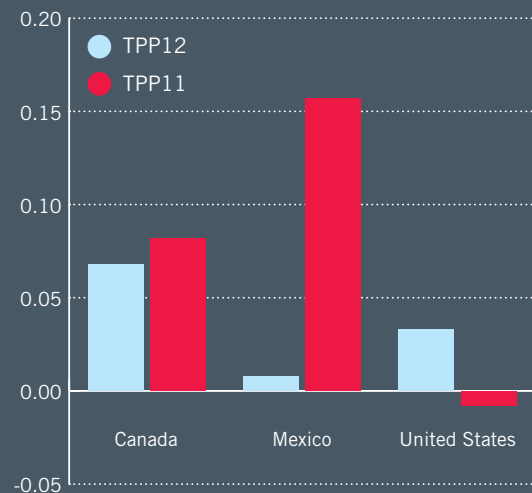
**THE 11 REMAINING SIGNATORIES ARE BETTER OFF WITH A TPP11 THAN WITHOUT. AT THE REGIONAL LEVEL A TPP11 WOULD:**

↖ **2.43%** Generate an increase of 2.43% in exports among TPP11 partners.

↖ **0.23%** Expand total exports of TPP11 parties to the world by 0.23% due to businesses outside the trade bloc moving production to a TPP11 country to take advantage of the agreement.

↖ **0.074%** Raise real GDP of the TPP11 bloc by about 0.074% and generate economic welfare benefits of about C\$22 billion by 2035.

### GDP IMPACT OF THE TPP (Canada, Mexico and U.S.)



Source: Calculations by the authors.

## MAJOR FINDINGS *from TPP11 modelling*

### FOR ALL TPP11 COUNTRIES

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*The 11 remaining signatories are better off with a TPP11 than without.*

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The economic analysis demonstrates that the overall value of benefits would be lower due to the absence of the U.S. However, each of the 11 parties would still benefit by participating. Specifically, at the regional level, a TPP11 would:

- **Generate an increase of 2.43% in exports among TPP11 partners.** This is 40% of what would have occurred under TPP12, or C\$22.7 billion in increased exports at 2017 prices for TPP11 compared to C\$55.6 billion for TPP12.
- **Expand total exports of TPP11 parties** to the world by 0.23% (about C\$16 billion at 2017 prices) due to businesses outside the bloc moving production to a TPP11 country to take advantage of the agreement. This movement of production could especially benefit Mexico and Canada if U.S. firms decide to relocate to take advantage of Canadian and Mexican access to TPP11 markets.
- **Raise the real GDP of the TPP11 bloc** by about 0.074% and generate economic welfare benefits of about C\$22 billion by 2035. With the U.S. gone, these gains are obviously smaller in absolute terms than under TPP12, but what's important, are about the same in percentage terms.

### FOR CANADA

- Canada stands to benefit in TPP11 compared to TPP12 more than any other country in the group, save Mexico. Canada's welfare gains would improve to C\$3.4 billion under the TPP11, compared to C\$2.8 billion in TPP12. Real GDP gain improves to 0.082% from 0.068%.

→ A TPP11 would actually be better than the original agreement for Canadian agriculture and agri-food, because this sector would no longer compete with the U.S. in TPP11 markets. Beef, in particular, would benefit from access to the Japanese market without having to share with the Americans. Fruit and vegetable exports, processed food products, and pork and poultry would likewise do well. Canola would continue to see a significant change in the composition of exports from unprocessed oilseeds to crude and refined canola oil, due to the elimination of Japan's tariff escalation policy in the oilseed sector.

- The only Canadian sector with a significant negative impact relative to the pre-TPP baseline would be dairy, which would face increased imports under Canada's concession – in both TPP12 or 11. Because the main global dairy producer, New Zealand, is geographically distant from Canada, the U.S. would have been more important competition to Canada in terms of fluid milk. Without the U.S., TPP11 may mean less pressure on fluid milk. But generally under TPP11 there may still be a dampening of prices from competitive dairy products from other TPP countries, a reduction of Canadian supply, and a corresponding higher level of consolidation, particularly winnowing out more higher-cost producers than is already the case.
- Canadian textiles and apparel – another sensitive sector – would see only a moderate reduction in total shipments, despite a strong surge of imports from TPP11 partners (again, this is unchanged from TPP12).

- The impact on the automotive sector is neutral in the new modelling results, but much would depend on how a TPP11 would proceed on the rules of origin (ROOs), given the central role of U.S.-based producers in TPP automotive supply chains.

## FOR OTHER TPP11 COUNTRIES

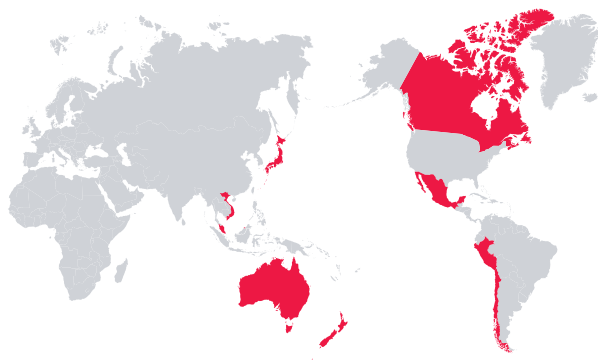
- A TPP11 would improve upon TPP12 for signatories in the Americas (Mexico, Canada, Peru and Chile), as these countries would avoid erosion of existing preferences in the U.S. market (assuming existing bilateral agreements remain unchanged). These countries would also benefit from not having to compete with U.S. suppliers, as they would have had to under TPP12.
- A TPP11 would improve upon TPP12 for Singapore, which similarly would avoid loss to U.S. competition of its existing preferential position in Asian markets.
- Vietnam and Japan, while they would still benefit from TPP11, would also see the biggest reduction of gains, because they stood to gain the most in the U.S. market under TPP12.

## FOR SPECIFIC SECTORS

- Notwithstanding the withdrawal of the U.S., the automotive sector would make the largest intra-TPP export gains of all the goods sectors under TPP11.
- Other sectors that would benefit from increased exports under TPP11 include machinery and equipment (C\$2.3 billion), leather products (C\$2.1 billion), beef (C\$1.2 billion), processed foods (C\$946 million) and fruit and vegetables (C\$343 million).
- The TPP11 would wash out the large export gains that Vietnam stood to make in textiles and apparel in the U.S. market under TPP12. Nonetheless, textiles and apparel (C\$4.2 billion) see the largest gains in intra-TPP exports after automotive products.
- Finally, service exports get little wind in the sails from TPP11. Business services exports make the most notable gain, expanding by C\$345 million, but this falls far short of what TPP12 would likely generate.

## FOR THE UNITED STATES

- A projected gain in exports to TPP countries under a TPP12 of C\$17.3 billion would turn into a C\$4.1 billion loss of exports to TPP countries under a TPP11 agreement.
- American losses from TPP11 would stem from its exclusion from the supply chain benefits of a multilateral agreement. Under TPP11, countries would benefit from essentially one set of rules for sourcing and producing goods and services in or from all 11 countries. If a company in Japan that produces goods with inputs from Malaysia and Vietnam wanted to sell to Canada, for example, it could enter Canada under the favourable conditions of TPP11 since all the countries are members of TPP11.
- A bilateral agreement between the U.S. and Japan, on the other hand, would apply only to goods made only or mostly in Japan and the U.S. For a Japanese company that has supply and production chains in Vietnam and Malaysia, this could pose a major problem. Though a bilateral deal with the U.S. would bring a bigger market for some firms, for other companies with supply and production chains in neighbouring countries, this might not be as advantageous.





## TWO REASONS TO PROCEED

### 01 ECONOMIC GAINS

Although the economic gains under a TPP11 would be modest, they are still gains. This fact tends to get lost in public discussions where absence of the U.S. from the agreement is conflated with absence of any benefit to the agreement. This is clearly not the case. Further, the costs for these gains in terms of negotiations and concessions have already been paid in real and political terms. The true question is whether lower returns for some countries justify the marginal incremental cost of continuing without the U.S. This is more of an issue for those countries that sold the agreement to their citizens based on access to the U.S. market, the “prize” of the initial deal. For those countries, the evidence shows that they would still benefit – a TPP without the U.S. is not an all-or-nothing proposition. For those countries with existing preferential trade agreements with the U.S., a TPP11 is generally an improvement on the original deal, since they do not have to share those benefits with the remaining countries.

### 02 NEGOTIATING LEVERAGE

The other argument for proceeding comes from the original multilateral logic of the arrangement. First, the parties individually have less leverage negotiating with the U.S. For those countries that do not have trade agreements with the U.S. and are facing pressure from the Trump administration to negotiate bilaterally, a TPP11 would create leverage in two ways: (1) It shifts the time pressure to the U.S. (recall the haste with which the U.S. moved to close negotiations with Korea on the Korea-U.S. trade agreement following the conclusion of the Korea-EU agreement); (2) It provides the additional bargaining chip of having more to give to the U.S. on ROOs in exchange for U.S. concessions.

By withdrawing from the TPP and declaring an intention to seek better terms through bilateral negotiations for new agreements in Asia (and potentially through renegotiating existing agreements), the Trump administration is seeking to gain leverage over potential negotiating partners. Forging ahead with the TPP without the U.S. will help counter this move. Second, and more generally, TPP11 is the most readily available instrument to emphasize to U.S. interests the benefits of co-operative approaches to international trade by immediately highlighting the costs implicit in not co-operating. Importantly, given the politics of retaliation, TPP11 does not require direct retaliation and thus does not raise for individual TPP11 parties the costs of retaliation – rather it generates a benefit.

The evidence in this report on TPP11 impacts does not consider the implications of where the agreement, as negotiated, would land on several controversial issues. These include the governance regime for intellectual property, the mechanism for investor-state dispute settlement, and, the governance issues surrounding data flows. These are fluid issues, all remain highly controversial, and all will be the subject of intense negotiations with the U.S. in its bilateral negotiations. It is valid to question the extent to which it is wise for the TPP11 parties to carve in stone any specific regime in these areas among themselves.<sup>2</sup>

#### AN IMPORTANT CAVEAT FOR POLICY-MAKERS

The available quantitative tools are inadequate to assess the impacts of the TPP as an instrument of systemic regulation and value protection for knowledge-based assets such as intellectual property (IP). An economy that is based on knowledge assets works on different principles than the industrial or traditional goods and services economies. The knowledge-based economy is

<sup>2</sup> For example, the U.S. Supreme Court decision in *TC Heartland vs. Kraft Foods* changed the lay of the land in the U.S. on forum shopping in IP litigation. The TPP retains the terms rejected by the U.S. Supreme Court. The Canada-EU Comprehensive Economic

and Trade Agreement (CETA) has improved ISDS. New concerns are emerging about use of data. These considerations provide valid reasons to suspend these elements in TPP11 and move forward on the basis of partial provisional application.



premised on amassing IP and data portfolios, and exploiting the associated rents, not on moving inventory. Importantly, the knowledge-based economy includes not only new technology-intensive sectors, but also “traditional” sectors – consider the role of genetically modified organism (GMO) patents in food production, geographical indications in enhancing the market value of cheese and wine, and the emerging role of artificial intelligence in machinery and consumer products across the industrial spectrum. The network externalities and “winner-take-all” competitive outcomes of knowledge-based economics raise difficult and different questions about competition from those contemplated in the TPP governance model. It extends comprehensive protection (via a general “freedom to operate”) to businesses that have established assets and thus locks in the dominant market positions of those firms that have significant assets and, by extension, the countries in which they base their operations. In the case of the TPP, this advantage extends to instituting U.S. standards for protection of knowledge assets, which locks in “home ice” advantage for U.S. firms. The wealth effects of the TPP are likely heavily skewed to the countries like the U.S. with the largest stocks of intangible assets like IP and patents to protect. The inability to model how an agreement like the TPP would impact the knowledge-based economy could materially impact the assessment of the net benefits of TPP11 for any individual party, including Canada.

In the end, the Trump administration’s swift exit from the TPP has clearly not killed the deal. Even though the agreement as it stands cannot enter into force without the U.S., there is still an opportunity for the remaining signatories to move ahead. They can strike out text requiring the U.S. ratify the agreement before it comes into effect and press on with a revived deal. While the benefits would be lower without the U.S., the fact is that the 11 remaining countries are better off with a TPP11 than without any agreement at all.

Moreover, if an agreement on a TPP11 is reached, the U.S. would find itself a loser – turning a projected gain in exports to TPP countries under a TPP12 of C\$17.4 billion into a C\$4.1 billion loss. Canada, meanwhile, could emerge a winner – Canada would see the highest gains after Mexico in a TPP11.

The quantitative evidence of gains, the political arguments and the ability to craft a sensible path forward make a compelling case for the remaining countries to proceed with a TPP11.

#### **TPP & NAFTA**

For Canada and Mexico, the TPP ratification process will run concurrently with the renegotiation of the North American Free Trade Agreement (NAFTA) with the U.S. For the Americans, the trade negotiating priorities that defined the TPP negotiations and produced the final agreement are the same ones that will guide its NAFTA negotiating position. Article 1, Section 8 of the U.S. Constitution unequivocally states that Congress shall have “power to regulate Commerce with foreign nations.” While the U.S. administration negotiates, Congress sets priorities. This is done through Trade Promotion Authority (TPA) legislation, also known as “fast track.” This legislation is an agreement between Congress and the administration to allow a rapid congressional review and a single up-down vote on trade agreements without the possibility of congressional amendment. In exchange, the administration, which has constitutional power to manage foreign relations and negotiate treaties, agrees to do so with priorities defined by Congress. The TPA legislation – and priorities – that were used to negotiate the TPP are the same that will be used for the NAFTA renegotiations. Though Congress can amend this legislation, it has not done so, nor does it appear to be planning to do so. Given the change in the U.S. administration and anti-trade sentiment in Congress, it may be that the TPP represents the best deal on these U.S. priorities that Canada and Mexico will get.







# INTRODUCTION

The withdrawal by the Trump administration of the United States from the Trans-Pacific Partnership (TPP), together with its stated intent to negotiate new deals with the parties bilaterally, poses a question to the other 11 TPP parties (“the Eleven”): Should they go ahead with the agreement as negotiated without the U.S., adjusting only the provisions for entry into force? How should they address the U.S.?

There are three considerations:

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## **01 DOES TPP11 MAKE SENSE FOR THE ELEVEN AS A STANDALONE AGREEMENT?**

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## **02 DOES THE EXISTENCE OF TPP11 GIVE SIGNATORIES LEVERAGE IN POTENTIAL BILATERAL (OR IN THE CASE OF NAFTA, TRILATERAL) NEGOTIATIONS OR RENEGOTIATIONS WITH THE U.S.?**

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## **03 COULD THE LOSSES TO THE U.S. DUE TO ITS EXCLUSION FROM THE TPP BRING THE AMERICANS BACK TO THE TABLE? ESSENTIALLY, COULD TPP11 BE A PATH TO REALIZING OR RE-ACHIEVING THE LARGER POLITICAL AND ECONOMIC BENEFITS OF A TPP12?**

In this light, this paper provides quantitative input bearing on the consideration of whether the Eleven should go it alone. Specifically, this paper assesses the impact of the TPP as negotiated excluding the bilateral commitments between the United States and each of the Eleven using the Global Trade Analysis Project (GTAP) multi-region, multi-sector model.

Estimating the effects of a multilateral agreement like the TPP is a complex effort that goes beyond adding up the effects of tariffs and non-tariff barriers (NTBs) across the players. The multilateral nature of the TPP creates benefits that would be impossible to replicate even with the most complex set of 66 bilateral treaties (each of the 12 countries signing a bilateral treaty with the other 11).

The model captures the effects of multinational supply chains. These are no small part of the picture. In fact, American losses from a TPP11 stem from its exclusion from the supply chain benefits of a multilateral agreement.

Under a TPP11, countries would benefit from essentially one set of rules for sourcing and producing goods and services in or from all 11 countries. If a company in Japan that produces goods with inputs from Malaysia and Vietnam wanted to sell to Canada, it could enter Canada under the favourable conditions of TPP11 since all the countries were members of the agreement.

A bilateral agreement between the U.S. and Japan would apply only to goods made only or mostly in Japan and the U.S. For the Japanese company that has supply and production chains in Vietnam and Malaysia, this would pose a major problem. Even though a bilateral deal with the U.S. would bring a bigger market for some companies, for other companies with supply and production chains in neighbouring countries, this might not be as advantageous.

If a TPP11 encourages supply chains among participating countries because of advantages for trade among them, then would this be a disadvantage in bilateral trade with the U.S. where these multi-country products may not receive as favourable treatment as single-country products?

The question is whether this advantage for some firms to sell into a market of 11 countries is enough of an advantage to maintain enthusiasm for proceeding, given that other firms and sectors that backed the TPP did so primarily based on gaining access to the U.S. Under this model, the Eleven would have the benefit of regional cumulation of value added for origin determinations under the TPP11, whereas the U.S., in its sequence of bilaterals, would not – unless it purchased this through its bilateral offers. In other words, trading off access to cumulation would be a bargaining chip, which TPP11 would create, for each of the Eleven in its bilateral negotiation with the U.S. The provisional measures negotiated by Canada in its agreement with the European Union (EU) for the auto sector rules of origin (ROOs) provide an example of how this can be an asset for negotiations.

## METHODOLOGY

The TPP11 policy shock consists of the liberalization commitments made by the parties for tariffs and NTBs in goods and services and foreign direct investment (FDI). The TPP rules commitments are evaluated against the Organisation for Economic Co-operation and Development's (OECD) Trade Facilitation Index (TFI), Services Trade Restrictiveness Index (STRI), and Foreign Direct Investment Restrictiveness Index (FDIR) for goods trade, cross-border services trade, and investment, respectively. For goods trade, we consider ROOs impacts in terms of a less-than-full rate of preferences utilization, but assume a high rate of utilization to reflect a key TPP outcome, namely ROOs regionalization. For services trade, we incorporate estimates of the value of binding commitments.

For the simulations, we use a dynamic version of the GTAP computable general equilibrium (CGE) model that incorporates FDI by introducing a foreign-owned representative firm into each GTAP region-sector. FDI responds in tandem with domestic investment to changes in rates of return (RORs) in each region-sector based on tariff and NTB reductions; it also responds independently to reductions in NTBs facing investment, based on elements of the TPP text that change a country's FDI restrictiveness.

To bring out the relative contribution of the TPP's various quantifiable elements, we simulate the shocks on a sequential basis for each policy measure, such that the marginal effect of each set of measures is brought out.

The basis for the modelling is the updated GTAP V9 database with a base year of 2011. We assume entry into force of the TPP11 on January 1, 2018.

The rest of this paper is organized as follows: background on the TPP economies, an overview of the quantitative modelling of the TPP, the policy shock, the results, impacts on Canada, and discussion and conclusions.







# BACKGROUND

## THE TPP ECONOMIES AND THE UNITED STATES

The original 12 TPP signatories are Australia, Brunei-Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, the U.S., and Vietnam. They are all members of Asia-Pacific Economic Cooperation (APEC). They have a combined population of about 812 million, GDP of just under US\$27.5 trillion<sup>3</sup>, imports of goods of more than US\$4.7 trillion<sup>4</sup>, and imports of commercial services of approximately US\$1.1 trillion<sup>5</sup>. The U.S. exit sharply reduces these numbers: TPP11 generates about one-

third of the total GDP of TPP12, accounts for about 60% of the population of TPP12 region, and has an average per capita income about one-third of the U.S. level, measured at market exchange rates.

A similar reduction in size to TPP11 from TPP12 is seen in imports and outward FDI. As shown in Figure 2, TPP11 accounts for 14.7% of global imports of goods, almost 13% of global imports of services, and 14.3% of global imports of goods and services combined. Figure 3 shows that TPP11 accounts for about 14.4% of global FDI stocks, inward and outward, and is comprised, on net terms, of outward investors.

**FIGURE 1: INCOME AND POPULATION, ESTIMATED 2016, TPP11 AND THE U.S.**

	GDP		GDP PER CAPITA		POPULATION
	Current US\$ millions	PPP <sup>6</sup> US\$ millions	Current US\$	PPP US\$	millions
Australia	1,225,286	1,140,619	51,181	47,644	23.9
Brunei	12,930	33,171	30,993	79,508	0.4
Canada	1,550,537	1,633,700	43,280	45,602	35.8
Chile	240,233	423,285	13,342	23,507	18.0
Japan	4,124,211	4,843,269	32,479	38,142	127.0
Malaysia	296,284	817,425	9,501	26,211	31.2
Mexico	1,143,796	2,230,137	9,452	18,430	121.0
New Zealand	172,257	167,934	37,066	36,136	4.6
Peru	192,113	389,921	6,168	12,518	31.1
Singapore	292,734	472,590	52,888	85,382	5.5
Vietnam	191,454	553,421	2,088	6,037	91.7
TPP11	9,441,835	12,705,472	19,261	25,919	490
Memo: U.S.	18,036,650	18,037,000	56,084	56,084	321.6
TPP12	27,478,485	12,723,509	33,849	15,673	812

Source: IMF (October 2016).

<sup>3</sup> Estimated 2015 population and GDP from IMF (October 2016)

<sup>4</sup> Merchandise imports, 2015 from ITC (2015)

<sup>5</sup> Services imports, 2015 from WTO (n.d.)

<sup>6</sup> Purchasing Power Parity

**FIGURE 2: GLOBAL IMPORTS, TPP11 PARTIES AND THE U.S., 2015 (US\$ MILLIONS)**

	TOTAL GOODS		TOTAL SERVICES		COMBINED TOTAL GOODS AND SERVICES	
	Imports from the World	Imports from TPP11 parties	Imports from the World	Imports from TPP11 parties	Imports from the World	Imports from TPP11 parties
Australia	200,766	42,622	54,622	13,773	255,388	56,395
Brunei	3,229	1,471	22,245		25,474	1,471
Canada	419,152	47,844	96,270	7,270	515,422	55,114
Chile	63,038	7,476	13,444		76,482	7,476
Japan	625,568	105,221	175,641	22,019	801,209	127,240
Malaysia	176,175	46,424	40,044		216,219	46,424
Mexico	395,232	42,908	32,057		427,289	42,908
New Zealand	36,528	10,772	11,680	5,716	48,208	16,488
Peru	38,105	5,567	7,963		46,068	5,567
Singapore	296,888	62,480	143,469	14,375	440,357	76,855
Vietnam	165,776	28,122	15,501		181,277	28,122
TPP11 Total	2,420,457	400,907	612,936	63,153	3,033,393	464,060
U.S.	2,306,822	856,546	490,614		2,797,436	856,546
TPP12 Total	4,727,279	NA	1,103,550	NA	5,830,829	NA
World Total	16,473,391		4,729,460		21,202,851	
TPP11 Share of World Total	14.69%		12.96%		14.31%	

Source: International Trade Centre (2015) for goods trade and WTO (n.d.) for services trade.

**FIGURE 3: INWARD AND OUTWARD INVESTMENT, TPP11 PARTIES AND THE U.S., 2015 (CURRENT US\$ MILLIONS)**

	STOCKS		FLOWS	
	Inward	Outward	Inward	Outward
Australia	537,351	396,431	22,264	-16,739
Brunei	6,061	2,645	173	508
Canada	756,038	1,078,333	48,643	67,182
Chile	207,827	87,415	20,176	15,513
Japan	170,698	1,226,554	-2,250	128,654
Malaysia	117,644	136,892	11,121	9,899
Mexico	419,956	151,924	30,285	8,072
New Zealand	66,056	17,262	-986	214
Peru	86,114	2,815	6,861	127
Singapore	978,411	625,259	65,262	35,485
Vietnam	102,791	8,590	11,800	1,100
TPP11 Total	3,448,947	3,734,120	213,349	250,015
U.S.	5,587,969	5,982,787	379,894	299,969
TPP12 Total	9,036,916	9,716,907	593,243	549,984
World Total	24,983,214	25,044,916	1,762,155	1,474,242
TPP11 Share of World	13.81%	14.91%	12.11%	16.96%

Source: UNCTAD (2016: Annex Tables 1 and 2). Note: negative figures for outward flows reflect net disinvestment from abroad.







## Framework for QUANTITATIVE ANALYSIS

### THE GTAP-FDI MODEL

To model the TPP, we use a recursive dynamic version of the standard GTAP CGE model, adapted to incorporate FDI (Ciuriak and Xiao, 2014, provide a description of the way FDI is incorporated in the model).

CGE models integrate several accounts to provide a complete description of an economy:

- The standard national income and expenditure accounts
- A breakdown of industry by sector that reflects inter-sectoral input-output links, which consider internationally-sourced intermediate goods and services (in all, the GTAP dataset allows for the representation of up to 57 sectors, 43 of which are goods)
- A production function for each sector that combines sector-specific inputs of capital, skilled and unskilled labour, and intermediate inputs
- A trade account that models the international linkages for each sector of the economy

The model generates results for national account aggregates, industry output and prices, factor inputs and prices, and trade flows. For a technical description of the GTAP model, see Hertel (1997); for a discussion of the degree of confidence in CGE estimates, see Hertel et al. (2003).

On the production side, the model evaluates efficiency gains from the reallocation of factors of production across sectors. In the first stage (“nest”), land, labour (skilled and unskilled), and capital substitute for one another to generate domestic value-added by sector; intermediate inputs, which include imported inputs, substitute for domestic value-added in the second stage.

Given that we use a dynamic model, both labour and capital respond to changes in factor returns. Labour responds to changes in the wage rate per an estimated long-run elasticity equal to one. Capital supply responds to changes in the ROR on capital; the investment response is based on the Monash capital model (Dixon and Rimmer, 1998). Both labour and capital are mobile across all sectors within a country. Capital is also mobile internationally.

On the demand side, an aggregate Cobb-Douglas utility function allocates expenditures to private consumption, government spending, and savings to maximize per capita aggregate utility. Following a shock, such as the TPP, the changes in consumption are allocated across these three aggregates based on their income shares in each region.

Private household demand responds to changes in prices and income. This latter effect reflects the fact that consumption of types of goods, such as luxury goods, increases more with higher income than does consumption of other goods, such as staple food products.<sup>7</sup> Notably, changes in trade protection not only result in changes in the prices of intermediate production goods, but also in the prices of consumer goods, which induces demand responses.

<sup>7</sup> Household demand is modelled using a Constant Difference of Elasticities function, which captures the fact that the structure of household demand changes as income increases (i.e., in technical terms, it is “non-homothetic”).

The trade module assumes imperfect substitution based on product differentiation across regions. The key parameter determining the scale of impacts on trade from a tariff shock is the elasticity of substitution – a high substitution elasticity generates relatively large trade impacts for a given size of tariff shock. Note that the GTAP sectors reflect relatively large aggregates of individual products; accordingly, substitution elasticities are lower than they would be for product categories that are defined more narrowly and, thus, are more substitutable for each other.

Economic welfare is based on equivalent variation, the lump sum payment at pre-shock prices without the shock that leaves households as well off as in the post-shock economy.

We use a perfect competition specification of the GTAP model. Some models incorporate imperfect competition for industrial goods sectors, introducing price mark-ups that represent monopolistic pure profits in equilibrium. These price mark-ups are reduced by intensified competition under trade liberalization, generating additional welfare gains.<sup>8</sup> Several recent models incorporate heterogeneous firms features, which generate productivity gains from reallocation of market shares to more productive firms under trade liberalization.<sup>9</sup> As it is problematic to combine all these features in one model while retaining a reasonable degree of product and regional disaggregation, no single modelling exercise can be considered definitive; a suite of studies is required to hone in on the likely impacts (see, e.g., Narayanan et al., 2015).

## IMPLEMENTATION

We use the recently-updated GTAP V9 database with a base year of 2011. For the simulations, we adopt a 33-product group aggregation, featuring 11 agricultural and food sectors, 4 other primary sectors, 10 industrial sectors, and 8 services sector. Figure 4 provides the breakdown for sectors.

The regional disaggregation used for the model features 40 economies and/or regions designed to model the various mega-regional trade agreements. We report the results for the TPP11 economies,<sup>10</sup> the U.S., China, India, Korea, Taiwan, Other APEC, the EU28 and the rest of the world (ROW).

The TPP11 is assumed to be implemented in 2018, the same as was assumed for the TPP12 in Ciuriak et al. (2016).

We first simulate the GTAP database forward to 2035, using GTAP dynamic database tools, which draw on available macroeconomic data (IMF World Economic Outlook for the near term and projections from Fouré et al., 2012, for the out years).

The policy shocks – tariff reductions, the effect of ROOs on preference utilization, NTBs on services, and NTBs on investment – are implemented on this projected base in a dynamic process whereby changes in the ROR on capital induce investment and changes in wage rates induce changes in labour force participation. The shocks are simulated sequentially, allowing us to decompose the impacts by policy measure. The results reported are changes relative to the baseline at 2018, 2025, and 2035. The reported gains in 2035 may be interpreted as a permanent increase in the level of trade and economic output, once full equilibrium has been restored following the policy shocks, including the reallocation of capital and labour across sectors and regions in response to the changed opportunities flowing from the TPP policy shock.

<sup>8</sup> See Roson, 2006, for a review of the issues raised by this methodology.

<sup>9</sup> These include Zhai (2008); Dixon et al. (2013); Balistreri and Rutherford (2013); Oyamada (2013); and Itakura and Oyamada (2013). See Roson and Oyamada (2014) for a review.

<sup>10</sup> Note: Brunei is part of Rest of Southeast Asia in the underlying modelling framework.

**FIGURE 4: SECTORS IN THE TPP MODELLING FRAMEWORK**

Agriculture and Food	Forestry, Fishing, Mining	Industry and Manufacturing	Services
Rice	Forestry	Textiles and Apparel	Construction
Wheat and Cereals	Fishing	Leather Products	Trade
Fruit and Vegetables	Fossil Fuels	Wood Products	Transport
Oil Seeds and Vegetable Oils	Mineral Products	Chemicals, Rubber, and Plastics	Communication
Sugar		Metals and Metal Products	Financial Services
Dairy		Automotive	Business Services
Beef		Transport Equipment	Recreation
Pork and Poultry		Electronic Equipment	Other Services
Other Agriculture		Machinery and Equipment	
Food Products		Other Manufactures	
Beverages and Tobacco			

Source: Compiled by the authors.

**FIGURE 5: REGIONS IN THE MODELLING FRAMEWORK**

TPP	Other RCEP	TTIP/Other TISA	TFTA and ROW
Australia	Indonesia	EU28	Ethiopia
Canada	Philippines	Norway	Kenya
Chile	Thailand	Switzerland	Mozambique
Japan	Rest of Southeast Asia	Other EFTA (Iceland and Liechtenstein)	Tanzania
Malaysia	China	Israel	Uganda
Mexico	Korea	Pakistan	Rwanda
New Zealand	India	Turkey	Rest of East Africa
Peru		Hong Kong	SACU
Singapore		Taiwan	Other TFTA
U.S.		Colombia	ROW
Vietnam		Central America (Costa Rica and Panama)	
		Other South America (Paraguay and Uruguay)	

Source: Compiled by the authors. Note: Brunei is part of Rest of Southeast Asia.

## CLOSURES

In CGE simulations, the number of endogenous variables is limited; the others must be set exogenously by assumption and the modeller decides which are which, thus defining the “closure” of the model. CGE models can be simulated with various alternative closures; the choice influences the results significantly.<sup>11</sup>

Under the GTAP model's default *microeconomic* closure, the factor endowments (i.e., the total supply of labour, both skilled and unskilled, as well as of capital and land) are fixed; factor prices (i.e., wages and returns to capital and land) adjust to restore full employment of the factors of production in the post-shock equilibrium.<sup>12</sup> Under alternative microeconomic closures that are sometimes used, the returns to capital or to labour can be fixed and the supply of capital and/or labour then adjusts to restore equilibrium.<sup>13</sup> Each of these closure rules makes an extreme assumption about the supply of labour and/or capital: it is either perfectly elastic or perfectly inelastic. The reality is likely to be somewhere in between.

In the GTAP-FDI model, investment adjusts to changes in the ROR; similarly, we allow labour supply to adjust to changes in wages. As a result, the TPP generates “endowment” effects: that is, the supply of labour and capital changes based on changes in returns to labour and capital. For both labour and capital, the supply elasticity is set at one; for labour supply, this assumption is based on estimates of long-run labour supply from the literature<sup>14</sup>; for capital supply, the assumption is based on regressions of the investment response to a change in ROR using firm-level data.

As regards GTAP's *macroeconomic* closures, two approaches are available. First, the current account can be fixed, which assumes that the external balance is determined entirely by domestic investment-savings dynamics. When trade policy shocks result in unbalanced changes in imports and exports, the original trade balance is restored by implicit exchange rate adjustments. Alternatively, the current account can be allowed to adjust to the trade shock. The change in the current account must then be offset by equivalent changes in capital flows. In reality, unbalanced trade impacts are likely to have both effects: induce subsequent exchange rate adjustments and offset capital flows. The choice of macroeconomic closure can have significant implications for the model outcomes.<sup>15</sup> Given the active role of FDI in our model, we necessarily adopt the closure where the current account adjusts.

<sup>11</sup> Ciuriak and Chen (2008), modelling the Canada-Korea FTA, find GDP impacts vary from 0.064%, when labour and capital supply both fixed, to 0.268%, where both capital and labour supply are flexible.

<sup>12</sup> This is sometimes described as reflecting a medium-term time horizon in which labour supply is relatively “sticky.”

<sup>13</sup> The closure rule in which the ROR to capital is fixed is sometimes described as reflecting longer-run “steady-state” growth conditions. For an example of the use of the labour market closure rule, under which the wage rate is fixed, see Francois and Baughman (2005).

<sup>14</sup> See Evers et al. (2008) for a meta-analysis of the labour supply elasticity literature; this study concludes the elasticity is about 0.1 for men and 0.6 for women, or about 0.3 on average. Ham and Reilly (2013) find statistically-significant inter-temporal labour supply elasticities of 0.89 with the Panel Study of Income Dynamics dataset and 1.0 with the Consumer Expenditure Survey dataset. The TPP is likely to be implemented in a condition of economic slack, hence supporting the assumed moderately higher elasticity.

<sup>15</sup> E.g., Gilbert (2004), modelling the Korea-US FTA, finds that the fixed current account simulation reduces welfare gains for Korea to 3/5 the level of the simulation with a flexible current account and marginally (by 5%) for the United States.







# THE TPP POLICY SHOCK

## TARIFFS

Tariff reduction/elimination is based on the published schedules and technical summaries released by the parties following the conclusion of negotiations. The shocks are identical to those in Ciuriak et al. (2016). There are several general points to bear in mind.

First, the precise extent to which the TPP liberalization schedules improve upon existing free trade agreement (FTA) commitments could not be taken fully into account in this analysis due to resource constraints. Significant improvements that have been flagged by governments in their technical summaries are incorporated – for example, the TPP improves upon the market access commitments made by Japan on beef to countries with which it has existing FTAs that provided lesser market access (Australia, Mexico, and Peru) and the U.S. improves the market access for Australian dairy by reframing the quotas to make them commercially useful. Otherwise, we do not attempt to identify marginal additional improvements under the TPP compared to existing agreements. The TPP does clean up the spaghetti bowl of FTAs in the Asia-Pacific to some extent, but our simulations do not capture the full extent; this is largely housekeeping, however, and should not materially impact the assessment.

Second, as regards the time path of the liberalization schedules, the TPP's schedules are highly complex and differentiated by individual products and countries, which makes it impractical to attempt to capture the phase-outs in detail. We review the tariff elimination schedules to identify the overall timeframes for phase-outs applied for different product groups and construct stylized straight-line elimination schedules accordingly. We note that, at the high level of aggregation at which CGE simulations are run and given the changing composition of trade, especially in the later stages of the implementation period, the trade weights for the individual tariff lines will, in any event, change (and probably quite significantly). We provide read-outs of the impacts at years 8 (2025) and 18 (2035) of the TPP implementation period; these are, in our view, reasonable estimates of the medium- and longer-term impacts.

Third, we do not consider the trailing bits of liberalization that extend beyond 2035. Changing economic conditions make impact estimates that far in the future highly uncertain and such commitments are of limited relevance to either policy or business.

Fourth, as regards the value of the managed trade concessions in the agricultural sector, we assume full quota utilization with physical quantities converted to values based on unit values in trade in the relevant product groups. Given uncertainties about quota utilization and the fluctuations in unit prices from year to year and across countries, these impact estimates are subject to some degree of uncertainty.

## PREFERENCE UTILIZATION

We factor in underutilization of preferences for industrial products due to cost of compliance with ROOs.

We assume that agricultural products face negligible ROOs costs and are traded largely by large agribusiness firms with more than adequate administrative capacity and so assume 100% preference utilization and impose no charge for this use.

For textiles and clothing and autos, we assume a high utilization rate of 90% due to the size of the tariff savings and the likelihood that supply chains would be adjusted to take full advantage of the TPP (there is considerable evidence that factories are already being shifted into Vietnam to take advantage of the TPP for exports to the U.S.). For other industrial sectors, we assume 80% utilization of preferences to reflect the regionalization of ROOs, a significant negotiating achievement. We phase in the utilization rate from 60% in the first year by 5% per year to reflect adjustment to the regime.

We do not incorporate a charge for utilizing preferences into the simulations, since the assumption of preference underutilization based on empirical evidence concerning observed utilization rates already includes the trade effects of ROOs costs. We consider that the Armington specification of the model, which allows for differing unit costs of traded goods, already addresses the welfare costs of trade diversion (in terms of sourcing imports from higher-cost TPP-region sources).

## GOODS SECTOR NTBS

The overall assessment of the TPP's impact on goods trade NTBs in Ciuriak et al. (2016) was that it was below the level that is meaningful for a macroeconomic analysis, such as is conducted in this study, particularly given the advances made in the World Trade Organization's Trade Facilitation Agreement.

## SERVICES SECTOR NTBS

We develop the liberalization shock for services NTBs by coding the TPP measures against the cross-border services trade components of the TPP parties' STRI developed by the Organisation for Economic Co-operation and Development (OECD) (Gelosso Grosso et al., 2015). We also consider the extent of squeezing "water" out of the bindings in the General Agreement on Trade in Services (GATS) by comparing TPP bindings to the parties' scores in the corresponding GATS Trade Restrictiveness Index (GTRI) developed by Miroudot and Pertel (2015) and/or in existing bilateral FTAs.

In developing the TPP policy shock for services, we proceed as follows:

- NTBs, as quantified by gravity model-based analysis, implicitly reflect both the effect of actual restrictions and of "water," as measured by the difference between the GTRI and the STRI (that is, the difference between bound commitments and applied practice).
- Based on regression analysis of the effect of bindings (Ciuriak and Lysenko, 2016), we assume that actual market restrictions, as measured by the STRI, have twice the restrictive power as an equivalent amount of "water."
- Accordingly, we adopt the following simple formula:  $\text{Total NTB} = \alpha(\text{STRI} + 0.5 \times \text{Water})$ , where  $\alpha$  is a coefficient that scales the index-based measure to the ad valorem equivalent of country's sector-specific NTBs developed for the World Bank by Jafari and Tarr (2014).

## **BARRIERS TO FDI**

For FDI, we build in a liberalization shock based on cross-referencing the TPP's measures to the OECD's FDIR index for TPP member countries. Given the presence of numerous bilateral investment agreements within the region, the marginal impact of new bindings attributable to the TPP is not likely to be of major significance and a specific quantification of the value of bindings was not included.

## **OTHER ISSUES**

We do not explicitly model the impact of intellectual property (IP) measures, for several reasons. First, IP measures work differently than trade liberalization. Where trade liberalization increases competition and reduces prices, increased IP protection does the opposite.<sup>16</sup> The benefit from IP protection is increased research and development (R&D) activity and increased innovation, which are manifest in additional product varieties (e.g., new drugs or more films). The conventional modelling framework for FTA analysis is not at all equipped to deal with IP issues as it does not reflect the impact of IP protection on asset values (Ciuriak, 2017). The impact on any individual economy of increased IP protection is thus an open empirical question. Innovation could be inhibited in some jurisdictions depending on whether disincentives outweigh incentives (Ciuriak and Curtis, 2015). From a financial flow perspective, the direct benefits of increased IP protection in the TPP would be heavily skewed to the U.S. and, to a lesser extent, Japan – the countries with the largest stocks of IP to protect. Taking these flows into account could materially impact the distribution of TPP benefits across the various parties.

Government procurement is also not modelled. Since most procurement is done through commercial presence (“Modality 2” in government procurement; see Cernat and Kutlina-Dimitrova, 2015), rather than on a cross-border basis (“Modality 1”), and since Modality 2 already benefits fully from national treatment rules under World Trade Organization (WTO) commitments, the TPP's impact here is likely to be small in any event. Accordingly, unlike the case of IP, the failure to explicitly model procurement will not materially affect the overall sense of the TPP impacts.

<sup>16</sup> For a discussion of the interaction between trade rules and innovation, see Ciuriak and Curtis (2015).



# RESULTS

*Overall impact of TPP11*



## TRADE IMPACTS

**FIGURE 6: EXPORTS TO TPP PARTNERS AND TO THE WORLD, 2035**

	TPP12		TPP11	
	2017 C\$ millions	% change*	2017 C\$ millions	% change*
<b>Exports to TPP Parties</b>				
Australia	-235	-0.14	116	0.12
Canada	2,110	0.36	3,256	4.70
Chile	-86	-0.16	-47	-0.14
Japan	12,731	4.15	5,595	3.32
Malaysia	2,596	1.21	2,534	1.59
Mexico	-77	0.05	2,048	3.12
New Zealand	2,292	5.66	2,137	6.48
Peru	-155	-0.38	78	0.34
Singapore	727	0.36	1,023	0.58
Vietnam	18,357	11.99	5,962	6.83
U.S.	17,316	1.41	-4,125	-0.32
China	-1,129	-0.04	-192	-0.01
India	-1,267	-0.38	-135	-0.10
Korea	482	0.14	58	0.02
Taiwan	502	0.29	177	0.16
Other APEC	-1,240	-0.19	-257	-0.06
EU28	-3,102	-0.23	-1,125	-0.17
ROW	-2,786	-0.2	-473	-0.07
<b>Memo: TPP</b>	<b>55,557</b>	<b>1.54</b>	<b>22,702</b>	<b>2.43</b>
<b>Exports to the World</b>				
Australia	138	0.05	460	0.08
Canada	1,516	0.14	2,321	0.22
Chile	-51	0	-2	0.01
Japan	9,034	0.52	2,645	0.12
Malaysia	1,399	0.16	1,454	0.16
Mexico	416	0.12	3,376	0.47
New Zealand	1,021	0.55	858	0.42
Peru	-99	-0.04	127	0.11
Singapore	1,245	0.2	1,478	0.21
Vietnam	14,086	2.99	3,398	0.65
U.S.	14,502	0.37	-1,872	-0.03
China	-1,969	-0.02	-701	-0.01
India	-485	0	-60	0.00
Korea	52	0.01	22	0.00
Taiwan	23	-0.01	35	0.00
Other APEC	-1,088	-0.04	-295	-0.02
EU28	-2,907	-0.01	-779	0.00
ROW	-2,429	-0.03	-256	-0.01
<b>Memo: TPP</b>	<b>43,138</b>	<b>0.39</b>	<b>16,115</b>	<b>0.23</b>

Source: Calculations by the authors. Note: ROW indicates Rest of the World; TPP totals do not include Brunei. Note: the original model data, which are in US\$ at 2011 prices, are converted to 2017 US\$ using the change in the US GDP deflator over the period (10.25% over the period in the IMF World Economic Outlook Database, April 2017). The conversion to C\$ at 2017 prices is done at the exchange rate assumed by the IMF for 2017 in that database (1.316 C\$/US\$). The overall conversion factor is 1.451 from 2011 US\$ to 2017 C\$.

**FIGURE 7: IMPORTS FROM TPP PARTNERS AND FROM THE WORLD, 2035**

	TPP12		TPP11	
	2017 C\$ millions	% change*	2017 C\$ millions	% change*
<b>Imports from TPP Parties</b>				
Australia	178	0.04	1,536	1.23
Canada	1,927	0.34	5,264	5.40
Chile	20	0.03	41	0.17
Japan	13,626	2.94	2,811	1.01
Malaysia	313	0.13	688	0.42
Mexico	1,676	0.35	11,115	19.19
New Zealand	1,056	2.65	945	3.20
Peru	-51	-0.15	462	2.86
Singapore	57	0	231	0.15
Vietnam	6,925	7.07	851	1.07
U.S.	32,767	2.27	-989	-0.07
China	-3,582	-0.2	-1,863	-0.14
India	-598	-0.22	-225	-0.13
Korea	-844	-0.2	-464	-0.17
Taiwan	-335	-0.19	-225	-0.19
Other APEC	-1,545	-0.3	-765	-0.19
EU28	-3,306	-0.26	-1,381	-0.24
ROW	-2,279	-0.24	-865	-0.21
<b>Memo: TPP</b>	<b>58,315</b>	<b>1.54</b>	<b>23,943</b>	<b>2.42</b>
<b>Imports from the World</b>				
Australia	-87	-0.02	366	0.06
Canada	1,487	0.16	2,427	0.28
Chile	-64	-0.03	-7	0.00
Japan	10,458	0.57	3,128	0.17
Malaysia	1,319	0.2	1,414	0.22
Mexico	476	0.05	3,938	0.59
New Zealand	1,090	1.15	957	0.98
Peru	-109	-0.09	142	0.11
Singapore	485	0.07	677	0.10
Vietnam	16,735	3.47	4,192	0.88
U.S.	15,788	0.36	-2,309	-0.05
China	-2,800	-0.05	-785	-0.02
India	-1,151	-0.07	-177	-0.01
Korea	-29	-0.01	18	0.00
Taiwan	15	-0.01	36	0.00
Other APEC	-1,402	-0.08	-338	-0.03
EU28	-3,808	-0.02	-923	-0.01
ROW	-3,185	-0.04	-421	-0.01
<b>Memo: TPP</b>	<b>47,493</b>	<b>0.44</b>	<b>17,233</b>	<b>0.28</b>

Source: Calculations by the authors. Note that imports are valued using GTAP code VSW, while exports are valued using GTAP code VXW. See also notes to Figure 6.

\* The % change represents the one-year increase (or decrease) from the 2035 baseline.



A TPP11 would generate 2.43% in additional intra-regional exports, which is only two-fifths of the increase that would be expected to occur under a TPP12, which includes the U.S.' impact in level terms (C\$22.7 billion at 2017 prices for TPP11 compared to C\$55.6 billion for TPP12). Even though the total amount of increase is smaller, an obvious result with the U.S. removed, it is larger in percentage terms, because the overall level of intra-TPP trade is much smaller when the parties' bilateral trade with the U.S. is excluded. Total exports of TPP11 parties to the world expand by 0.23% (about C\$16 billion at 2017 prices). The limited export deflection for the TPP parties (i.e., a reduction of exports to third parties to satisfy new demand within the TPP11 zone) is consistent with the likelihood that businesses outside the TPP11 will be expected to move production to a TPP11 country to take advantage of the agreement.

As a trade deal, TPP11 improves upon TPP12 for the Eastern Pacific parties (Mexico, Canada, Peru, and Chile), as these countries avoid erosion of existing preferences in the U.S. market, assuming current treaties (such as NAFTA) continue unchanged, while they pick up market share in the Western Pacific from the U.S. It also improves upon TPP12 for Singapore, which avoids preference erosion in its Asian markets from U.S. export gains in those markets. Apart from the U.S., which flips from gains to losses under TPP11, Vietnam and Japan see the biggest reduction of gains, because they stood to gain the most in the U.S. market under TPP12. Third parties are less negatively hit by TPP11 than by TPP12. The EU28, India, and China experience the largest reduction of negative impact.

## IMPACTS ON GDP & ECONOMIC WELFARE

For the TPP11 as a group, the simulations suggest that real GDP will rise by about 0.074%, generating economic welfare benefits of about C\$21 billion by 2035. These gains can be understood as the lump sum payment that would have to be paid to households in the TPP11 zone to compensate them for having the TPP11 agreement go ahead. These gains are smaller in absolute terms, but about the same in percentage terms compared to the gains under TPP12. The difference in welfare effects does not consider any impacts on the economic performance of the non-quantified TPP measures – including in particular, IP – that might emerge under a provisional TPP11 compared to the full package of TPP12 as negotiated.

We observe that this GDP gain is, in real terms, about one-quarter the size of the trade gain in real terms, which is a reasonable ratio considering literature on this issue (the rule of thumb suggests a ratio of around 20%). However, the welfare gain is large in value terms relative to the total trade gain (welfare gains of C\$22 billion from two-way trade gains of a little over C\$41 billion); this reflects terms of trade improvements for TPP11. Given the size of the TPP11 region relative to the world, a non-negligible impact on terms of trade is plausible. Overall, the simulation results generate broadly reasonable ratios.

The impact on real GDP and welfare follows the pattern of trade impacts, with Mexico, Canada, Chile and Peru improving their outcomes in TPP11 compared to TPP12. The U.S. has a relatively large flip on welfare, going from +9 billion under TPP12 to -4 billion under TPP11, which is larger than the flip on real GDP (from -.033% to -0.008%).

**FIGURE 8: GDP (%) AND ECONOMIC WELFARE (C\$ MILLIONS) IMPACTS OF THE TPP**

	TPP12		TPP11	
	Real GDP	Welfare	Real GDP	Welfare
Australia	0.007	-192	0.016	213
Canada	<b>0.068</b>	<b>2,758</b>	<b>0.082</b>	<b>3,405</b>
Chile	-0.007	-148	0.006	9
Japan	0.135	16,641	0.039	6,134
Malaysia	0.103	1,409	0.108	1,406
Mexico	0.008	-1,239	0.157	3,536
New Zealand	0.38	2,379	0.363	2,114
Peru	-0.018	-225	0.020	-4
Singapore	0.181	1,165	0.203	1,407
Vietnam	1.896	10,124	0.480	3,139
U.S.	<b>0.033</b>	<b>9,970</b>	<b>-0.008</b>	<b>-4,178</b>
China	-0.018	-9,771	-0.003	-1,885
India	-0.029	-4,744	-0.007	-995
Korea	-0.023	-1,059	-0.005	-313
Taiwan	-0.017	-136	-0.005	-52
Other APEC	-0.038	-2,957	-0.009	-736
EU28	-0.013	-5,905	-0.004	-1,732
Rest of World	-0.022	-11,425	-0.004	-718
Memo: TPP	<b>0.075</b>	<b>42,641</b>	<b>0.074</b>	<b>21,360</b>

Source: Calculations by the authors. Note: welfare is measured as equivalent variation.

## SOURCES OF THE IMPACTS

For TPP11, Figure 8 decomposes the major gains in welfare from:

- tariff reduction (about C\$17.1 billion),
- supplemented by services liberalization (about C\$2.1 billion) and
- FDI liberalization (also about C\$2.1 billion).

Most of the gains in services and FDI are attributable to the binding of existing market access and thus, due to a reduction of uncertainty.

One of the notable features of FDI liberalization is that the reallocation of capital to more profitable applications within the TPP11 frees up capital for net investment in third parties. The model simulation suggests all regions – those inside the TPP zone and those outside – would in fact benefit from the TPP11 FDI liberalization measures (note that this feature was also present in the TPP12 simulation).

**FIGURE 9: DECOMPOSITION OF TPP11 IMPACTS BY POLICY, CUMULATED CHANGE IN 2035**

	TARIFF/ ROOs	SERVICES NTBs	FDI NTBs	TOTAL	TARIFF/ ROOs	SERVICES NTBs	FDI NTBs	TOTAL
Real GDP % Change				Welfare, 2017 C\$ millions				
Australia	0.003	0.002	0.010	0.016	-132	74	270	213
Canada	0.061	0.015	0.005	0.082	2,514	701	191	3,405
Chile	-0.007	0.008	0.005	0.006	-82	59	33	9
Japan	0.034	0.003	0.003	0.039	5,553	324	257	6,134
Malaysia	0.088	0.000	0.020	0.108	1,202	-3	206	1,406
Mexico	0.142	0.008	0.007	0.157	2,994	351	191	3,536
New Zealand	0.332	0.015	0.015	0.363	1,999	54	61	2,114
Peru	0.019	0.000	0.001	0.020	-12	-2	10	-4
Singapore	0.005	0.061	0.137	0.203	96	417	895	1,407
Vietnam	0.458	0.019	0.003	0.480	3,018	98	23	3,139
U.S.	-0.008	0.000	0.001	-0.008	-4,203	-171	196	-4,178
China	-0.005	0.000	0.002	-0.003	-2,429	-80	624	-1,885
India	-0.009	-0.001	0.003	-0.007	-1,087	-142	234	-995
Korea	-0.007	0.000	0.002	-0.005	-347	-28	62	-313
Taiwan	-0.007	0.000	0.002	-0.005	-57	-5	9	-52
O/APEC	-0.012	-0.001	0.004	-0.009	-907	-43	214	-736
EU28	-0.004	0.000	0.001	-0.004	-1,798	-245	310	-1,732
ROW	-0.005	0.000	0.002	-0.004	-1,525	-192	998	-718
TPP11	0.057	0.007	0.009	0.074	17,150	2,073	2,137	21,360

Source: Calculations by the authors.

## SECTORAL IMPACTS

Figure 10 sets out the TPP11 sectoral impacts. In terms of intra-TPP exports, automotive products (C\$4.8 billion) stand out in the case of goods exports and business services (C\$712 million) in the case of services exports. A TPP11 washes out the large gains that Vietnam stood to make in textiles and apparel under TPP12 through enhanced access to the U.S. market. However, after automotive products, textiles and apparel (C\$4.2 billion) see the largest gains in intra-TPP exports. Other sectors that will palpably feel an intra-TPP expansion of exports include machinery and equipment (C\$2.3 billion) and leather products (C\$2.1 billion). In the agri-foods area, beef (C\$1.2 billion), processed foods (C\$946 million) and fruit and vegetables (C\$343 million) make notable gains.

## IMPACTS OF TPP11 ON CANADA

After Mexico, Canada stands to do best from a TPP11 compared to TPP12. The overall impact on Canada is similar under either deal, because Canada's liberalization commitments are essentially the same under TPP11 as under TPP12 (since TPP12 entailed minimal adjustments to Canada-U.S. trade relations that could be modeled). Welfare gains improve to C\$3.4 billion from C\$2.8 billion and the real GDP gain improves fractionally to 0.082% from 0.068%. The largest difference for Canada is markedly stronger (but still small) terms of trade gains. At the macroeconomic level, the gains of a TPP11 are little different for Canada than that of TPP12.



**FIGURE 10: TPP REGIONAL SECTORAL IMPACTS 2035**

		CHANGE OVER BASELINE IN C\$ millions			PERCENTAGE CHANGE		
		Intra-TPP exports	TPP exports to world	TPP imports from world	Intra-TPP exports	TPP exports to world	TPP imports from world
1	Rice	-1	-51	9	-0.13	-0.69	0.16
2	Wheat and Cereals	42	-13	17	0.63	-0.04	0.05
3	Fruit and Vegetables	353	234	6	8.22	0.58	0.02
4	Oilseeds and Vegetable Oils	48	-74	87	0.48	-0.09	0.17
5	Sugar	0	-3	15	0.11	-0.05	0.17
6	Dairy	52	-81	168	1.1	-0.17	0.44
7	Beef	1,178	733	680	18.01	2.32	4.06
8	Pork and Poultry	1	-22	16	0.14	-0.13	0.29
9	Other Agriculture	12	4	26	0.97	0.06	0.35
10	Forestry	255	119	1,029	0.18	0.02	0.11
11	Fishing	94	67	223	0.19	0.01	0.13
12	Fossil Fuels	1,097	837	782	18.29	3.53	3.91
13	Mineral Products	209	164	35	5.07	1.4	0.12
14	Food Products	946	789	638	4.12	0.78	0.48
15	Beverages and Tobacco	138	129	123	2.65	0.51	0.34
16	Textiles and Apparel	4,177	3,893	2,784	18.11	2.83	1.19
17	Leather Products	2,108	1,824	1,098	35.09	3.98	2.63
18	Wood Products	547	234	501	1.72	0.13	0.27
19	CRP	1,410	807	1,667	1.66	0.13	0.24
20	Metal Products	827	380	933	0.99	0.06	0.19
21	Automotive	4,772	4,492	1,922	6.79	0.78	0.48
22	Transport Equipment	186	-13	158	1.53	-0.01	0.11
23	Electronic Equipment	354	-192	740	0.28	-0.03	0.12
24	Machinery and Equipment	2,345	902	1,767	1.8	0.1	0.18
25	Other Manufacturing	210	22	215	3.2	0.04	0.26
26	Other Services	0	-97	129	-0.01	-0.16	0.17
27	Construction	71	25	103	1.53	0.07	0.26
28	Trade	17	-38	158	0.11	-0.04	0.14
29	Transportation Services	276	203	302	1.03	0.11	0.13
30	Communications	10	-20	44	0.4	-0.1	0.16
31	Financial Services	128	106	186	1.83	0.12	0.19
32	Business Services	712	588	474	2.29	0.31	0.22
33	Recreation Services	49	-16	103	0.58	-0.02	0.15
	<b>Total</b>	<b>22,623</b>	<b>15,930</b>	<b>17,139</b>	<b>2.41</b>	<b>0.26</b>	<b>0.28</b>

Source: Calculations by the authors.

**FIGURE 11: MACROECONOMIC IMPACTS ON CANADA, TPP11 VS. TPP12 (C\$ MILLIONS) (%)**

	TPP12	TPP11
<b>Economic Welfare (C\$ millions)</b>	2,758	3,405
Economic Welfare	0.076	0.097
<b>GDP Change (C\$ millions)</b>	2,340	2,811
GDP Volume	0.068	0.082
Consumption	0.082	0.108
Government Expenditure	0.055	0.065
Investment	0.060	0.091
Total Exports of Goods and Services	0.142	0.222
Total Imports of Goods and Services	0.160	0.284
<b>Trade Balance (C\$ millions)</b>	29	-106
Capital Stock	0.036	0.050
Unskilled Labour	0.041	0.064
Skilled Labour	0.038	0.060
Terms of Trade	0.011	0.035
Consumer Price Index	0.006	-0.007

Source: Calculations by the authors. All figures are percentage change unless otherwise indicated.

The sectoral impacts for Canada are reported in Figure 12. The bottom line figure for each sector is the value of total shipments – the sum of export sales to TPP11 partners, export sales to third countries (including the U.S.), and sales to the domestic Canadian market.

For Canada, TPP11 would improve on TPP12 outcomes for agriculture and agri-food. The beef sector would lead the way, gaining significant access to Japan's lucrative market, without having to deal with competitors from the U.S. entering the market at the same time with the same benefits. This would in essence be a repeat of what happened in Korea when the U.S. and Australia signed trade agreements ahead of Canada and their producers gained more favourable access and took market share from Canada. Under a TPP11, Canada would have largely equal access to the Japanese (and Vietnamese and Malaysian markets), while the U.S. would be the odd man out. Even if the U.S. were to open bilateral negotiations with Japan – something that does not appear likely in the near term – these negotiations

would take years or perhaps a decade – more than enough time for Canadian producers to entrench themselves in the market.

Fruit and vegetable exports, processed food products and pork and poultry would also do well. The canola sector would not see an overall expansion of total production, but would see a significant change in the composition of exports from unprocessed oilseeds to crude and refined canola oil, a change stemming from the elimination under TPP11 (as in TPP12) of Japan's tariff escalation policy in the oilseed sector.

The only sector with a significant negative impact on shipments is dairy, which takes a significant hit relative to the baseline, both in terms of an increase in imports and through the dampening of prices. The impact on Canada may be slightly less with TPP11 than TPP12 because the competition in fluid milk posed by the nearby U.S. under the latter would no longer apply in TPP11. New Zealand will still play a major role in dairy among the 11, but less so in fluid milk vis a vis Canada because of distance.

**FIGURE 12: SECTORAL IMPACTS OF TPP11 ON CANADA (C\$ MILLIONS) (%)**

	Exports to TPP	Imports from TPP	Total exports	Total imports	Domestic shipments	Total shipments	Exports to TPP %	Imports from TPP %	Total shipments %
Rice	0	0	0	2	0	0	0.13	-0.45	0.05
Wheat and Cereals	29	0	-29	3	14	-16	1.28	0.20	-0.07
Fruit and Vegetables	351	3	256	9	-2	254	141.97	0.16	3.27
Oilseeds and Vegetable Oils	18	25	-18	14	-11	-29	0.37	27.67	-0.08
Sugar	0	0	-1	1	3	2	-0.07	0.00	0.05
Other Agriculture	42	1	-19	21	250	231	10.60	0.30	0.91
Dairy	8	517	23	285	-973	-949	8.44	501.51	-2.26
Forestry	0	0	-3	1	25	22	0.03	1.26	0.07
Fishing	9	0	6	6	17	24	9.62	0.32	0.34
Fossil Fuels	6	13	-24	36	82	58	0.20	1.23	0.02
Mineral Products	4	8	-14	19	34	19	0.16	0.20	0.02
Beef	578	-11	543	28	232	775	59.01	-2.13	2.07
Pork and Poultry	208	1	177	30	79	256	12.48	0.55	1.18
Food Products	241	66	216	65	45	262	14.06	5.14	0.30
Beverages and Tobacco	103	9	100	15	37	137	37.48	0.90	0.42
Textiles and Apparel	75	1,699	117	423	-366	-249	26.56	94.46	-0.85
Leather Products	38	537	41	116	-62	-21	129.73	80.37	-1.06
Wood Products	195	191	115	128	35	150	4.78	5.80	0.07
CRP	195	262	115	152	-27	88	2.98	4.02	0.04
Metal Products	134	37	-14	76	43	28	2.95	0.24	0.01
Automotive	158	1,429	232	408	-232	0	3.18	6.54	0.00
Transport Equipment	157	51	91	44	-4	87	5.26	3.17	0.17
Electronic Equipment	7	16	-7	41	6	-1	0.34	0.16	0.00
Machinery and Equipment	242	110	130	168	-13	117	3.78	0.94	0.08
Other Manufacturing	25	37	4	31	68	73	6.47	10.22	0.06
Other Services	0	-1	-16	26	1,392	1,376	0.02	-0.13	0.11
Construction	4	24	3	10	618	621	3.54	7.46	0.11
Trade	11	1	1	17	746	747	0.92	0.11	0.10
Transportation Services	29	38	14	42	107	120	0.85	1.78	0.06
Communications	3	5	-3	10	130	127	0.60	1.04	0.09
Financial Services	28	20	-3	45	289	286	3.05	2.83	0.09
Business Services	345	300	284	135	362	645	4.09	9.58	0.10
Recreation Services	11	9	-3	20	96	92	0.55	1.00	0.08
Total Goods	2,825	5,001	2,039	2,122	-719	1,319	5.52	5.99	0.06
Total Services	431	396	276	305	3,738	4,015	2.49	4.42	0.10
Total Shipments	3,256	5,397	2,315	2,427	3,019	5,334	4.75	5.83	0.09

Source: Calculations by the authors.



The latter effect might be overstated in our simulations if there is less than anticipated consolidation in Canada's dairy sector to winnow out higher cost producers, which could encourage Canadian prices to fall.

The government compensation to the industry might very well have this effect. This would dampen the negative effect on dairy sector shipments, while taking a commensurate wedge out of Canadian welfare gains under the TPP. Textiles and apparel – another of Canada's traditionally sensitive sectors – experiences only a moderate reduction in total shipments, despite a strong surge of imports from TPP partners.

The impact on Canada's industrial sector is limited. Only wood products and machinery and equipment register gains that break the C\$100 million mark.

The Canadian automotive sector sees total exports offset the decline in domestic shipments due to increased import penetration. This outcome is, however, subject to uncertainty, because the simulations that generate this result do not explicitly model the ROOs. As discussed below, this creates much uncertainty about this particular outcome.

The services sector makes gains across the board, mainly due to expanded domestic sales driven by the positive income effects of TPP11. Only business services stand to make significant gains in cross-border exports and total sales as a result of TPP11, expanding sales to TPP partners by C\$345 million.

The overall sectoral picture has regional implications for Canada. The main gains in the agri-foods growing and processing sectors suggest that this would be of particular importance to western Canada.



## DISCUSSION & CONCLUSIONS

The original TPP12 agreement promised to be a relatively modest deal when evaluated in traditional terms of trade, jobs and growth.

However, when potential gains for agricultural and commodity producers over their U.S. competitors are factored in with the ability for Canada to catch up with, or stop losing ground to, key competitors in Asian markets, the case becomes compelling. Added to this, the modelling cannot adequately capture potential gains for Canada and Mexico from trade deflection. If U.S. producers look to move production from the U.S. into a TPP country to take advantage of the agreement, this arguably should benefit Canada and Mexico. Given the integrated nature of production between Canada, Mexico and the U.S. and the large number of U.S. subsidiaries already in Canada and Mexico, this shift in production would be straightforward and would not necessarily be completely reflected in FDI numbers. A U.S. border adjustment tax would also be irrelevant, as goods would be destined for Asia, not the U.S.

The biggest prize for Canada in a TPP11 is gaining access to Japan ahead of the U.S. and on terms that Canada could not achieve in a bilateral negotiation. This is the opposite of what happened to Canada in Korea where both the Americans and Australians were able to sign trade agreements ahead of Canada and take market share from our agricultural and livestock exporters. Seizing the opportunity in a TPP11 would show Canada has learned a lesson.

For all of these reasons, Canada would clearly benefit from provisional application of the trade liberalizing provisions and new opportunities.

However, there are a few challenges for Canada to address in TPP11.

In particular, how to handle the automotive sector would be a major issue. The TPP12 featured a significant lowering of the overall amount of RVC required for an automotive product to qualify for TPP preferences compared to the NAFTA standard of 62.5% for automobiles and light trucks. As noted, this measure was agreed to in bilateral side negotiations between the U.S. and Japan. Whether it would make sense to apply in a TPP11 context, given the Trump administration's rejection of this negotiated outcome and indications that higher regional value content would be demanded, is an open question. Deciding a provisional regime for automotive ROOs would be one of the major elements of negotiating implementation of the TPP11.

Considered in terms of the impact on asset values and systemic regulation, the parties' optimal position on the TPP is less clear. The asset value implications have not been quantitatively assessed for this or any trade agreement; meanwhile, the controversial governance areas of the TPP remain fluid, and all will be the subject of intense negotiations with the U.S. in any of its hoped for bilateral negotiations. In addition, case law in the U.S. on elements of IP is evolving and coming rulings from U.S. courts



may impact, if not contradict, elements of the TPP. Canada's and Mexico's ultimate positions on the measures shaping the knowledge-based economy are likely to be shaped by the outcome of the renegotiation of NAFTA.

Another difficult political issue for Canada and many other signatories are the investor-state dispute (ISDS) mechanisms in the agreement. Canada has made significant improvements in the ISDS chapter of its agreement with the European Union that would arguably be an improvement on the provisions in the TPP. These changes should also appeal to civil society critics and private sector advocates of ISDS mechanisms in Canada and elsewhere.

Even though it is unlikely that a majority of other signatories will agree, Canada may still want to take the temperature of the other countries in the pact on putting the IP and investor-state dispute sections of the agreement into abeyance. This could be done for a specified time to allow improvements to be negotiated. If time expires without an agreement, then current chapters could simply come into force.

There are some interesting questions on how the Eleven should proceed on a TPP11. But the questions revolve around "how" not "if," and the associated flanking measures that parties need to consider to ensure that governance of the knowledge-based economy is not compromised. Neither trade agreements nor these issues will go away – they need serious attention.

For Canada, even with the difficult questions, the case is clear: Ratification of TPP11 needs to proceed and the country should take a leading role among remaining signatories in the deal to see that a TPP11 comes into force.

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