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E-BRIEF

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TRADE AND INTERNATIONAL POLICY

Better In than Out? Canada and the Trans-Pacific Partnership

by
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- Based on the elements of the TPP that can be measured with reasonable precision, implementation of the TPP would boost Canadian household income by C$485 million in 2018, measured in 2016 dollars, rising to about C$3 billion in 2035, when the full impacts of the TPP have been realized. Real GDP would increase by about 0.02 percent in 2018, rising to about 0.08 percent in 2035, driven by an increase in two-way trade with TPP partners of about C$4.3 billion as of 2035.
- The major gains in goods trade are in agricultural produce, meat products (mainly pork and beef), and downstream food products.
- In services, business and financial services make gains in TPP export markets, although the major expansion in services is in the non-traded sectors through indirect income effects.
- Foreign direct investment would increase only marginally, driven mainly by the TPP's income effects, as the agreement implies minimal change to an already highly open investment regime.
- The regional and sectoral impacts touch on some of Canada's trade sensitivities: the dairy and automotive sectors both experience a relatively large decline in total shipments in our model, although these are small in terms of the total percentage of shipments of each sector. Industrial sectors, including textiles and apparel, the chemicals-plastics-rubber complex, and metal products, generally experience negative impacts. Wood products and transport equipment buck this trend and make gains.

The Trans-Pacific Partnership (TPP) negotiations were concluded in October 2015 and the agreement is now before its parties' national legislatures for ratification. The agreement remains as controversial now that it is public as it was during the negotiations, when it was an unknown

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quantity. To some, it is the best of all agreements – a landmark treaty that targets critical new issues in international commerce and establishes a framework for cooperation on next generation rules. For others, it is the worst of all agreements – raising healthcare costs, undermining innovation, and constraining legitimate national regulation of commerce. Quantitative assessments conducted prior to and since the release of the text of the agreement ranged from significant trade and GDP gains to losses for many of the parties, stoking controversies concerning the methodologies.

To contribute to this ongoing debate, we seek to quantify the agreement's impacts that can be measured with reasonable precision. This is no mean feat. The TPP features 30 chapters of text, a series of annexes elaborating market access commitments, and a large number of related instruments (e.g., exchanges of letters).[1]

Through economic modelling, we find that, overall, the TPP's main contribution to trade liberalization is to clear away most remaining tariffs and to regionalize the rules of origin (ROOs), which helps to clear up the "spaghetti bowl" effect of multiple, often-overlapping and inconsistent, trade agreements in the Asia Pacific region.

The liberalization is stretched out over decades and falters when it comes to sensitive sectors, such as rice for Japan, sugar for the United States, and dairy for Canada. In these sectors, protection survives largely intact and the compensating subsidies that governments have promised, and which we are not modeling here, likely eviscerate any welfare gains from the modest trade concessions.

Our modelling show the TPP promises to have a limited impact on Canada, owing to a number of factors.

First, the TPP achieves only limited and narrow reductions of non-tariff barriers (NTBs) to goods and services trade and barriers to investment; here, its main contribution is to bind (i.e., promise not to increase barriers above) current applied practice in the services commitments.

Second, we do not attribute liberalizing value to provisions that reiterate already-accepted disciplines under the Trade Facilitation Agreement adopted by the World Trade Organization (WTO) in 2013, the Good Regulatory Practices declarations adopted by the Organization for Economic Cooperation and Development (OECD) and the Asia-Pacific Economic Cooperation (APEC) forum in 2011 and 2012 respectively, or in previous trade agreements.

Third, we also do not attribute liberalizing value to aspirational statements that have no legally binding effect (which have been termed "legal inflation"). Further, as mutual recognition agreements between TPP signatories are the main mechanism incorporated to address trade irritants, we see no basis for positive spillovers on third parties.

1 Substantive chapters cover trade in goods, including standard chapters on tariffs, rules of origin (ROOs), customs and trade facilitation, sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT), and trade remedies; investment, including a negative list approach with separate schedules for binding existing or liberalized practices and areas where no bindings are made; services, including cross-border services, sectoral chapters on financial services and telecommunications, and temporary entry of businesspersons; electronic commerce; government procurement; and intellectual property (IP). In addition, a number of chapters address competition and disciplines on state-owned enterprises (SOEs) and designated monopolies; minimum standards for labour; commitments on environmental measures; economic development; competitiveness and business facilitation; small and medium-sized enterprises (SMEs); regulatory coherence; transparency and anticorruption; dispute settlement; and various institutional provisions, which cover inter alia the setting up of a TPP Commission to oversee the work of the various working groups and committees that are to be formed under the agreement, as well as an accession clause for entry by new parties.

Finally, like all preferential agreements, the TPP partly replaces efficient protection (tariffs) with inefficient protection in the form of additional administrative costs to access the zero or reduced tariffs. These are called preferences (see Box A). Indeed, in a low-tariff environment, economic welfare is enhanced by paying the tariff rather than by incurring administrative costs associated with utilizing the preferences.

The main caveats suggest the risks are more on the downside in terms of the scale of gains; the reported figures should, therefore, be treated as an upper bound to the likely impacts.[2] This E-Brief focuses on the numbers. The TPP is, however, a complex agreement with many potential ramifications, some of which may only emerge in the public consultations around the agreement.

Our Methodology

The standard tool to analyze trade agreements is a computable general equilibrium (CGE) model. We employ a dynamic version of the widely used Global Trade Analysis Project (GTAP) model modified to directly represent foreign-owned firms in each sector of the economy to capture the impact on goods and services trade conducted through foreign affiliates.

The model incorporates measures of effective tariff protection and allows the impact of NTBs to be taken into account as cost reductions for doing business across borders. The trade impacts from these simulations capture the linkages across sectors through national input-output tables (for example, an increase in demand for automobiles drives fixed production requirements of steel, which in turn are met by a combination of domestic and imported steel).

To simulate the TPP, we establish a baseline projection to 2035 drawing on available long-term projections for guidance. The main research task is then to formulate the "shock" scenario – i.e., the assumptions concerning tariff cuts and their phase-in schedules, as well as the impact of measures addressing NTBs. For policy shocks, the model is simulated forward in a dynamic process whereby changes in the rate of return on capital induce investment and changes in wage rates induce increased labour force participation. The results reported are changes relative to the baseline at 2018, 2025, and 2035. The reported gains in 2035 may be interpreted as the permanent change in the level of economic output, once full equilibrium has been restored following the policy shocks, including the reallocation of capital and labour across sectors in response to the changed opportunities in the liberalized economy.

For a full discussion of our methodology, see online Appendix A; for our methodology for services in particular, see online Appendix B; and for NTBs, see online Appendix C.

Results for Canada

The TPP's macroeconomic impacts on Canada are shown in Table 1. For this section, we report the value data in

2 This caveat pertains to the assessment of the TPP on an ex ante basis, considered in light of the body of studies that evaluate trade agreements using CGE modelling techniques. The CGE literature has generally found smaller effects of trade agreements than ex post studies of actual trade impacts using gravity model techniques. Refinements of both the CGE modelling, which incorporate non-tariff effects of trade agreements, and of gravity modelling, which take into account the impact of trade agreements in different contexts, are helping to reconcile these differences. While promising advances have been made, a full reconciliation remains an outstanding research question. For a recent discussion see Ciuriak (2016).

Box A: State of the Modelling Art – ROOs, IP Rights and Non-tariff Barriers

Preferential agreements come with procedures for accessing preferences, namely ROOs. The TPP's ROOs incorporate regional cumulation of value, which will facilitate the use of preferences under existing bilateral agreements and, thus, may have some liberalizing effect even within the North American Free Trade Agreement (NAFTA) zone (see, for example, the experience with ROOs regionalization by the European Union when it regionalized the preferences it had extended under various bilateral FTAs; Augier and Gasiorek, 2005). However, this is an area where empirical guidance as to the strength of the regionalization effect is very limited, especially in a novel context, such as the TPP – a far-flung network stretching half-way around the globe, rather than a closely knit region.

As regards the rules regime, there is no established method to translate all the TPP chapters into changes in trade costs, which constitute the unit of measure for liberalization in trade models. The only attempt to our knowledge to attribute a trade cost reduction to each and every chapter of the TPP is Petri, Plummer, and Zhai (2011) and the follow-on studies by this team. The method they use in these studies, which is to consider the breadth and length of coverage, is open to the critique that it attributes liberalizing value to what has been termed "legal inflation" – incorporating non-binding, unenforceable, aspirational commitments (see, e.g., Horn, Mavroidis, and Sapir 2008) – and does not distinguish between the TPP's marginal contributions, if any, and pre-existing commitments of a similar nature in prior international agreements involving the same parties.

Additionally, this method's treatment of intellectual property rights (IPR) provisions as a trade cost reduction that stimulates trade flows is open to challenge on numerous grounds, including that it does not take into account the production-cost-raising effects of stronger IPR regimes, and positive terms of trade effects for some countries at the expense of others.

To address these concerns, we evaluate the impact of the TPP's rules commitments against the OECD's 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. To address the issue of legal inflation, we strip out aspirational commitments formulated on such language as "shall endeavour to," etc. We also consider whether the TPP improves upon prior commitments by comparing the TPP text to other agreements, including importantly the WTO TFA, which elicits commitments from all WTO parties for modern border procedures.

For goods trade, we take into account the impact of ROOs in discouraging full utilization of preferences, but assume a fairly high utilization rate to reflect the TPP's regionalization of ROOs.

As regards NTBs facing goods trade, we review commitments in such areas as mutual recognition, business facilitation, and regulatory coherence to identify measures to which trade cost reductions can be assigned (see online Appendix C). For services trade, we incorporate estimates of the value of binding commitments. We do not seek to model the impact of changes to IP-related rules in the TPP.

Table 1: Macroeconomic Impacts on Canada, Percent or C$ at 2016 prices

	2018	2020	2025	2030	2035
Economic Welfare (C$ millions)*	**485**	**1,059**	**2,021**	**2,464**	**2,908**
Economic Welfare (percent change over baseline)	0.019	0.038	0.066	0.072	0.076
GDP Change (C$ millions)	**336**	**893**	**1,805**	**2,133**	**2,468**
GDP Volume (percent change over baseline)	0.011	0.030	0.056	0.062	0.068
Consumption	0.019	0.042	0.073	0.078	0.082
Government Expenditure	0.012	0.024	0.043	0.050	0.055
Investment	0.018	0.033	0.053	0.056	0.060
Total Exports of Goods and Services	0.031	0.076	0.133	0.138	0.142
Total Imports of Goods and Services	0.054	0.102	0.157	0.159	0.160
Trade Balance (C$ millions)	**-29**	**-53**	**-48**	**2**	**30**
Capital Stock	0.000	0.003	0.016	0.027	0.036
Unskilled Labour	0.009	0.021	0.036	0.039	0.041
Skilled Labour	0.008	0.020	0.035	0.036	0.038
Terms of Trade	0.018	0.016	0.012	0.013	0.011
CPI	0.019	0.009	0.002	0.007	0.006

Note: * Economic welfare represents what Canadians would have to be paid to forgo the TPP and remain as better off as with the TPP.

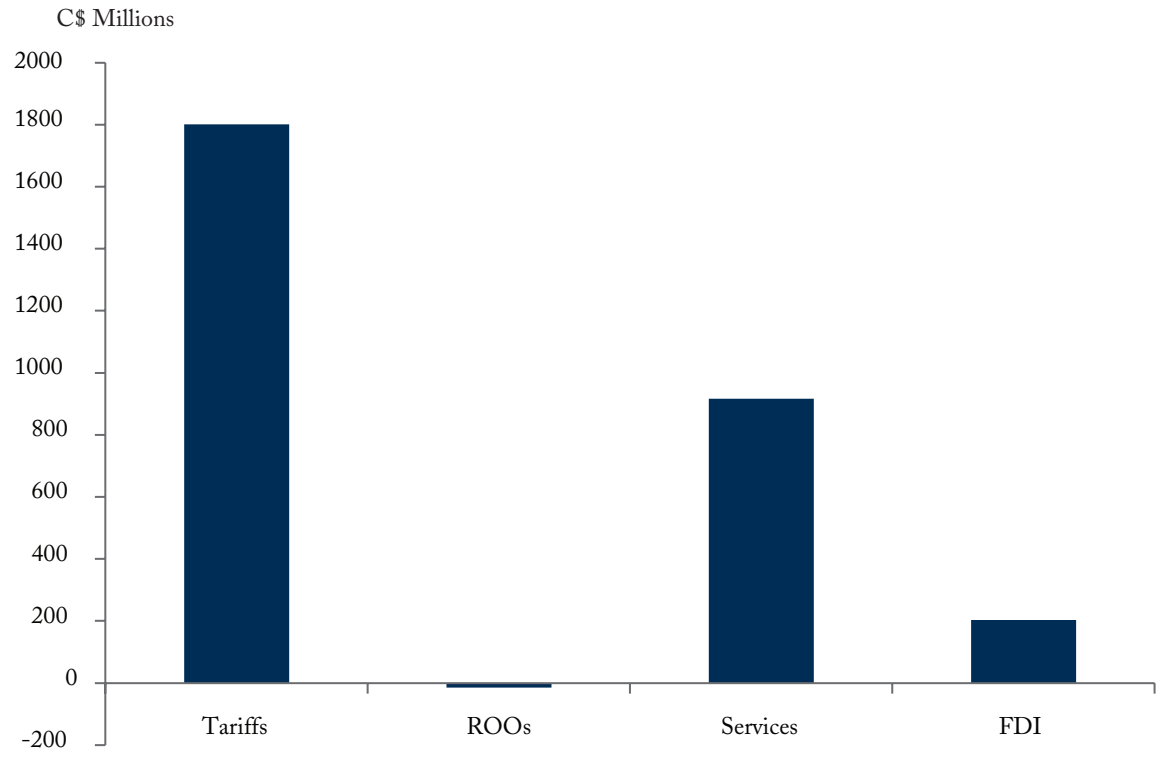
Source: Calculations by the authors. All figures are percentage change unless otherwise indicated.

Canadian dollars at estimated 2016 prices. The conversion factor from 2011 US dollars to 2016 Canadian dollars is 1.53, which reflects the estimated 7.5 percent inflation in US dollar prices between 2011 and 2016, and an exchange rate of approximately 72 cents.

The overall impact on Canada is muted, but quite balanced, implying no macroeconomic disruptions. In current Canadian dollar terms, the TPP generates about C$3 billion for Canadian households in 2035, the last year we model. Job gains would total about 7,600, with about 2,200 of those being skilled jobs.

The main sources of gain for Canada stem from tariff reductions and the binding of services market access (see Figure 1). Foreign direct investment (FDI) impacts are small and mainly driven by TPP income gains in Canada and, thus, are commensurate with normal investment. The discount of potential benefits for under-utilization of preferences is very small, because Canada makes its main trade gains in services and in agricultural

Figure 1: Canada – Sources of Gains under the TPP



Source: Calculations by the authors.

sector exports where meeting ROOs requirements is much easier and the large trading companies that carry out agricultural trade have well-established administrative systems to ensure full utilization.

The sectoral impacts for Canada are reported in Table 2; these figures represent the value of sales by industry, not value-added. However, by presenting domestic sales by industry on the same gross value basis as imports and exports, this provides an insight into the market share impacts that industry participants will experience – in terms of gains or losses in total shipments.

The main goods sectors experiencing gains in overall sales – whether to TPP partners, to the domestic market because of income gains, or to third markets due to trade deflection – are in agriculture and food products. Downstream food products make the largest gains in our simulation, with a C$1.3 billion gain in total shipments, driven largely by a C$1.2 billion gain in exports to TPP partners. The fruit and vegetables produce sector also makes substantial gains with total shipments rising by C$266 million, on the back of a C$341 million expansion of sales to TPP parties; part of this gain is, however, cannibalized from sales to third parties resulting in the lower overall reported gain in total shipments.

Pork and beef also make substantial gains, along with beverages and tobacco. The beef export gains are muted by comparison with the gains made by the United States, which expands beef sales to TPP parties by

Table 2: Sectoral Impacts of the TPP on Canada

	Domestic Shipments	Exports to TPP	Imports from TPP	Total Exports	Total Imports	Total Shipments	Exports to TPP	Imports from TPP	Total Shipments
	(C$ millions at 2016 prices)						*(percent)*		
Rice	1	0	1	0	5	1	-0.3	0.6	0.2
Wheat and Cereals	55	39	6	-13	7	43	1.3	1.1	0.3
Fruit and Vegetables	0	341	22	266	32	266	22.5	0.4	5.0
Oilseeds and Vegetable Oils	19	-54	5	-74	8	**-55**	-0.7	0.3	-0.2
Sugar	16	10	1	9	10	25	3.5	1.0	1.0
Other Agriculture	77	36	-1	19	22	96	1.4	-0.1	0.6
Dairy	-1,029	-5	443	8	301	**-1,022**	-2.8	124.7	-3.5
Forestry	34	0	1	-7	2	27	-0.1	0.3	0.1
Fishing	66	12	17	5	20	71	1.0	2.2	1.5
Fossil Fuels	59	0	3	-2	15	57	0.0	0.0	0.0
Mineral Products	8	-1	2	-30	3	**-22**	0.0	0.0	0.0
Beef	89	44	0	37	3	125	2.2	0.0	0.5
Pork and Poultry	62	117	8	102	14	164	4.9	0.4	1.1
Food Products	133	1,199	97	1,177	136	1,311	10.6	0.9	2.2
Beverages and Tobacco	35	97	8	97	12	131	6.5	0.2	0.6
Textiles and Apparel	-9	-142	15	-141	4	**-149**	-6.8	0.3	-0.7
Leather Products	-2	35	-6	34	11	32	30.6	-0.8	2.4
Wood Products	126	171	33	112	55	239	0.7	0.2	0.2
Chemicals, Rubber, Plastics	-50	-146	82	-179	62	**-228**	-0.3	0.2	-0.1

Table 2: Continued

	Domestic Shipments	Exports to TPP	Imports from TPP	Total Exports	Total Imports	Total Shipments	Exports to TPP	Imports from TPP	Total Shipments
	(C$ millions at 2016 prices)						*(percent)*		
Metal Products	-42	-65	-5	-160	2	**-202**	-0.2	0.0	-0.1
Automotive	-310	-133	482	-110	296	**-420**	-0.2	0.6	-0.3
Transport Equipment	4	110	13	67	28	70	0.8	0.1	0.2
Electronic Equipment	0	-1	12	-7	25	**-7**	0.0	0.1	0.0
Machinery and Equipment	-6	68	44	20	96	14	0.2	0.1	0.0
Other Manufacturing	46	4	9	-6	19	40	0.1	0.4	0.0
Other Services	1,221	-2	9	-15	18	1,206	-0.1	0.1	0.1
Construction	443	4	24	3	10	446	5.0	10.1	0.1
Trade	622	11	2	2	13	623	0.4	0.1	0.1
Transportation Services	86	18	34	21	36	107	0.3	0.5	0.1
Communications	102	3	4	-3	8	100	0.2	0.3	0.1
Financial Services	202	183	90	166	67	368	2.3	1.0	0.2
Business Services	-33	267	544	208	207	175	2.0	8.9	0.0
Recreation Services	62	8	33	-7	22	55	0.2	0.5	0.1
Total Goods	-617	1,734	1,292	1,225	1,187	607	0.5	0.4	0.0
Total Services	2,705	490	740	375	381	3,079	1.3	1.8	0.1
Total Shipments	2,087	2,224	2,032	1,599	1,569	3,687	0.6	0.5	0.1

Source: Calculations by the authors.

about C$3.4 billion; this reflects the much larger scale of the US beef industry, which allows it to more easily scale up production to meet the new demand, especially from Japan, than would be possible for the smaller Canadian industry.

The fishery and forestry sectors make modest gains, while dairy takes a significant hit, both in terms of an increase in imports and through the dampening of prices. The latter effect might be overstated in our simulations if there is no consolidation in Canada's dairy sector that eliminates higher priced producers and allows Canadian market-clearing prices to fall. The subsidies to the industry, if implemented, might very well have this effect. Such subsidies would reduce the negative effect on dairy sector shipments, but would also commensurately reduce Canadian welfare gains under the TPP, which depend on reallocation of Canadian productive resources.

While the overall impact on the oilseed sector registers as a negative, the underlying structure of the oilseed trade in Asia-Pacific implies that there will be a substantial restructuring of trade, with Canada moving up the value chain as Japan's tariff escalation[3] on canola products is eliminated, making Canadian vegetable oil processing more competitive.

Canada's industrial sector fares less well. Only wood products and transport equipment make gains, while machinery and equipment just stay in the black. The automotive sector stands to see a decline in shipments of C$420 million, both through erosion of the domestic market share and through a loss of export sales due to preference erosion in the key US market. It should be noted that this is not an impact that Canada could avoid by staying out of the TPP. Textiles and apparel – another of Canada's traditionally sensitive sectors – experiences a moderate decline in shipments, while the chemicals-rubber-plastics complex and metal products also see reduced shipments, albeit primarily through supply chain effects. Thus, Canadian industry in general faces stronger headwinds from the TPP.

The services sector makes gains across the board. Non-traded services, such as "other services," which include public services and construction, make significant gains due to the TPP's income effects. Wholesale and retail trade make gains due to the expansion of commercial activity. Transport and telecommunications also make modest gains from the increased economic activity generated by the TPP.

The interesting sectors for Canada are financial services and business services, which make fairly significant gains in cross-border exports.

As shown, the TPP has very significant differential effects on Canadian industry. Moreover, given the pattern of impacts, with industry facing headwinds and agriculture and food products making gains, there are likely to be significant regional differentials as well.

Furthermore, the main risks to the numbers appear to be mainly on the downside, notwithstanding some aspects discussed below that could be potential sources of underestimates of the gains.

- The GDP gain of 0.068 percent generated by the overall increase in two-way trade of about 0.15 percent is on the high side compared to the rule of thumb which holds that gains in GDP in percentage terms are

3 Tariff escalation refers to the practice of imposing higher tariffs on processed products than on raw materials, in order to capture processing activity for the domestic market. Thus, Japan imposes tariffs on canola oil that effectively wipe out the profit from processing canola seed in Canada to create canola oil and meal; as a result, Canada ships the raw material – canola seeds – to Japan, where the Japanese oilseed crushing industry gets the business. The TPP eliminates this tariff escalation and, thus, allows Canada to capture at least part of the crushing activity, to the benefit of the Canadian processing industry.

Table 3: Macroeconomic Impacts – If Canada Does Not Ratify, Percent or C$ at 2016 Prices

	2018	2020	2025	2030	2035
Economic Welfare (C$ millions)	-291	-500	-958	-1,365	-1,703
Economic Welfare (percent change over baseline)	-0.011	-0.017	-0.027	-0.032	-0.035
GDP Change (C$ millions)	-164	-279	-521	-757	-927
GDP Volume (percent change over baseline)	-0.006	-0.009	-0.016	-0.022	-0.026
Consumption	-0.012	-0.019	-0.028	-0.034	-0.036
Government Expenditure	-0.007	-0.011	-0.019	-0.024	-0.027
Investment	-0.018	-0.028	-0.040	-0.047	-0.049
Total Exports of Goods and Services	-0.012	-0.018	-0.030	-0.042	-0.050
Total Imports of Goods and Services	-0.038	-0.055	-0.078	-0.091	-0.096
Trade Balance (C$ millions)	75	105	123	129	100
Capital Stock	0.000	-0.003	-0.012	-0.022	-0.029
Unskilled Labour	-0.008	-0.011	-0.017	-0.021	-0.022
Skilled Labour	-0.007	-0.010	-0.015	-0.019	-0.020
Terms of Trade	-0.016	-0.023	-0.031	-0.031	-0.030
CPI	-0.021	-0.031	-0.039	-0.041	-0.040

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

expected to be roughly one-fifth the increase in openness in an economy due to the TPP policy measures; our simulations interpret the TPP policy shock as generating a strong supply-side response. This could be overly generous.

- The administrative cost of complying with ROOs is not taken into account because of the difficulty of calibrating this in the low-tariff environment of Asia-Pacific.
- Diary subsidies, if implemented, would reduce the welfare gains as measured by the model.
- The extension of copyright will also have a welfare cost that will make itself felt in terms of increased outflows in Canada's balance of payments and/or in terms of weaker real growth due to dampened derivative innovation.
- Canada's services trade gains may be overstated since the TPP region features, on average, relatively

low country risk, which would tend to reduce the implied market access gains for Canadian services providers and the pro-competitive stimulus of increased interest by foreign services providers in Canada's services markets.

Overall, these considerations could reduce the estimated gains for Canada considerably.

What if Canada Declines to Ratify?

To test the implications of Canada not ratifying, we rerun the simulation without Canada's participation. Table 3 shows the macroeconomic impacts.

The welfare cost to Canada would be minor in the short term – about C$290 million in the first year of implementation – but would rise to about C$1.7 billion by 2035 when the full impacts of the TPP will have been realized. The real GDP impact would be a negligible -0.006 percent in the first year, rising to about -0.026 percent in 2035.

The main sectors that would lose in trade terms (Table 4) would be beef and the canola crushing industry (which, as noted, benefits from removal of tariff escalation in Japan under the TPP), as well as the financial services and business services sectors, which would see exports to the TPP partners reduced. The automotive sector continues to feel the pinch from the TPP because the main impact comes from preference erosion in Canada's main export market, the United States. Otherwise, the negative impacts reflect lower incomes in Canada. The dairy sector would avoid a significant downsizing, but Canada would also be spared the need for subsidies to that sector to dampen the impact.

Results for the TPP Region Overall

The overall impact of the TPP for each member and some key non-member economies, as well as a list of trade impacts for 33 goods and services industries, are presented and discussed more fully in online Appendix D. Confirming realistic ex ante evaluations of the TPP's potential impact, the TPP as negotiated delivers a relatively small payload. The intra-TPP export increase is on the order of US$40 billion, the real GDP gain is about 0.074 percent, and the welfare gain for the entire region falls short of US$30 billion.

As a trade deal, the TPP mainly benefits the United States, Vietnam, and Japan. These three parties account for about 87 percent of intra-TPP export and 91 percent of intra-TPP import gains. Malaysia, New Zealand, and Canada also make tangible gains in exports; for the remaining parties (which notably include all the Latin American parties), the deal is essentially a wash in trade terms.

The small impact reflects the following basic facts:

- Apart from sensitive sectors, tariffs are already low in Asia-Pacific trade.
- Sensitive sectors successfully resisted significant liberalization.
- Preferences will not be fully utilized.
- When tariffs are low, the welfare cost of utilizing preferences is a large fraction of the welfare gain of the induced trade.
- The TPP as negotiated cannot be credited with generating an across-the-board reduction in goods trade costs for the following reasons:

Table 4: Sectoral Impacts – If Canada Does Not Ratify

	Domestic Shipments	Exports to TPP	Imports from TPP	Total Exports	Total Imports	Total Shipments	Exports to TPP	Imports from TPP	Total Shipments
	(C$ millions at 2016 prices)						*(percent)*		
Rice	0	0	-1	0	0	0	0.0	-0.2	0.0
Wheat and Cereals	-3	-13	-2	4	-1	0	-0.4	-0.3	0.0
Fruit and Vegetables	1	6	2	7	7	8	0.4	0.0	0.2
Oilseeds and Vegetable Oils	-2	-38	-6	-21	-5	-23	-0.5	-0.3	-0.1
Sugar	-1	-2	0	-2	-1	-4	-0.8	-0.1	-0.1
Other Agriculture	-74	20	-9	27	-5	-47	0.8	-0.8	-0.3
Dairy	-17	-10	-2	-8	-2	-26	-5.8	-0.7	-0.1
Forestry	6	0	0	-1	0	6	0.1	0.0	0.0
Fishing	1	4	0	4	0	5	0.4	0.0	0.1
Fossil Fuels	4	42	-11	48	-4	52	0.1	0.0	0.0
Mineral Products	-18	1	-8	-2	-9	-19	0.0	-0.1	0.0
Beef	-68	-222	-20	-217	-19	-285	-11.0	-1.3	-1.1
Pork and Poultry	1	-18	-12	-15	-10	-14	-0.8	-0.6	-0.1
Food Products	-24	-13	-20	-12	-16	-36	-0.1	-0.2	-0.1
Beverages and Tobacco	-13	-1	-3	-1	-4	-14	-0.1	-0.1	-0.1
Textiles and Apparel	-13	-136	-13	-132	-41	-145	-6.5	-0.2	-0.7
Leather Products	0	0	-7	0	-3	1	-0.1	-1.1	0.0
Wood Products	-26	43	-23	66	-24	40	0.2	-0.1	0.0
Chemicals, Rubber, Plastics	-31	-128	-65	-106	-77	-137	-0.3	-0.1	-0.1
Metal Products	-22	-30	-30	4	-39	-18	-0.1	-0.1	0.0

Table 4: Continued

	Domestic Shipments	Exports to TPP	Imports from TPP	Total Exports	Total Imports	Total Shipments	Exports to TPP	Imports from TPP	Total Shipments
	(C$ millions at 2016 prices)						*(percent)*		
Automotive	-59	-239	-94	-232	-114	-291	-0.3	-0.1	-0.2
Transport Equipment	2	4	-10	15	-7	17	0.0	-0.1	0.0
Electronic Equipment	4	10	-11	16	-20	20	0.2	-0.1	0.1
Machinery and Equipment	11	-33	-79	-9	-76	2	-0.1	-0.1	0.0
Other Manufacturing	-38	7	-8	11	-11	-27	0.1	-0.3	0.0
Other Services	-686	7	-14	12	-15	-674	0.2	-0.2	-0.1
Construction	-353	0	-1	1	-1	-352	0.3	-0.2	-0.1
Trade	-389	5	-7	8	-11	-381	0.2	-0.2	-0.1
Transportation Services	-56	-2	-8	14	-16	-42	0.0	-0.1	0.0
Communications	-65	2	-3	4	-5	-61	0.2	-0.2	-0.1
Financial Services	-142	4	-17	8	-22	-134	0.1	-0.2	-0.1
Business Services	-290	-38	-12	-27	-30	-317	-0.3	-0.2	-0.1
Recreation Services	-46	3	-10	9	-10	-37	0.1	-0.1	0.0
Total Goods	-381	-747	-432	-556	-484	-937	-0.2	-0.1	-0.1
Total Services	-2,026	-19	-72	27	-109	-1,999	0.0	-0.2	-0.1
Total Shipments	-2,408	-765	-504	-528	-594	-2,936	-0.2	-0.1	-0.1

Source: Calculations by the authors.

  - The border-related facilitation does not materially improve upon the already-agreed TFA and on-going World Customs Organization work programs;
  - The sector-specific features emphasize Mutual Recognition Agreements (MRAs), which have a weak track record in reducing trade costs and generate no positive spillovers for third parties, and in any event cover only a few product groups; and
  - Commitments on regulatory coherence reiterate existing commitments under OECD and APEC Good Regulatory Practices programs and, thus, provide no value-added.
- Services market access was minimally impacted – the TPP's main role was to bind above the level of the General Agreement on Trade in Services (GATS); we assign a major role to reduction of uncertainty, perhaps to a fault.
- FDI in most sectors is welcomed by all countries to start with and there is an extensive existing web of bilateral investment treaties in place, many of which already feature such mechanisms as investor-state dispute settlement (ISDS); our analysis shows limited improvement in conditions for FDI. Most of the FDI impact in the region is driven by income effects rather than liberalization.

Are these estimates too small? Considerations cut both ways.

Potential sources of under-statement of gains include the following:

- Improvements in TPP tariff schedules over existing FTAs that were not captured in our tariff shock.
- Reductions of some product-specific NTBs that do not lend themselves to quantification.
- The lack of empirical tools available to estimate the dynamic impact of the negative list approach on services (i.e., everything not specifically listed as excluded is subject to liberalizing provisions), which may turn out to be important.
- The modelling framework does not allow the reflection of liberalization made by the TPP in respect of movement of business persons.

Some TPP liberalization commitments that are beyond our time horizon of 2035, which some analyses are likely to factor into the bottom line gains, could also result in differences in estimates, although this would not reflect under-statement of gains in the time frame that we consider.

Potential sources of over-statement of gains include the following:

- A considerable portion of Asia-Pacific trade takes place on an intra-firm basis, whereas we model the agreement as if all trade were contestable in the open market.
- The modelling results reported above do not include a deduction from the welfare gains for the expanded subsidies in Japan for rice, in Canada for dairy, and in the United States through the locked-in protection for sugar.
- The formal modelling results do not reflect the costs of accessing TPP preferences: Asia-Pacific value chains prominently feature non-TPP parties, such as China, Taiwan, and Korea; moreover, because of the extended logistics chains that service Asia-Pacific trade, the paperwork to document regional value content is likely to be higher compared to a more tightly-knit region, such as NAFTA.
- There may be some cost-raising impact from the labour and environmental chapters for the TPP's lower-income economies that we do not factor into the analysis.

The single largest distinction between the treatment of the TPP in this study and in more optimistic assessments is the lack of a strong goods NTB effect. In our view, the burden of proof is on those making optimistic assessments – considered from a hard-headed "show me the money" perspective, there is very little of it in the TPP text. The TPP does not have the measures or the mechanisms to elicit significant regulatory harmonization – nor indeed did it even start out with the level of ambition in this area that is in evidence in, say, the Transatlantic Trade and Investment Partnership negotiations between the United States and the European Union. In our view, this militates against the possibility of significant positive spillovers, such as are incorporated in the World Bank/Peterson Institute study (Petri and Plummer 2016).

For services, we assign a major role to the TPP in reducing uncertainty for services providers, which underpins the TPP's relatively strong services trade impact even in the absence of any significant degree of actual services liberalization. Theory and empirical evidence suggest that reducing uncertainty has a substantial impact on trade. The simulations that we report paint a portrait of the TPP that is consistent with that notion.

As regards the FDI impacts, there has been an early move to shift textiles production to Vietnam to take advantage of the TPP-driven market access to the US market in particular (see, e.g., Cory 2015); strategic planning suggests this will build (see, e.g., the Fung Group briefing on the TPP, Sit et al. 2015). This is mainly trade and investment diversion in a mature industry driven by ROOs rather than investment creation. The modelling framework may not adequately pick this up and the effect for Vietnam may be stronger than we show. This would be further intensified if it involves vintage capital upgrades and if it generates positive spillovers for Vietnam. At the same time, for the most part, this will not generate significant net gains for the global economy, because this effect is mainly zero-sum diversion.

The distribution of the impact across TPP parties will be affected by the IP measures: the two countries that pressed hardest for the IP measures – the United States and Japan – stand to benefit from increased rents, while other parties will end up paying those rents. The scale of this could be material – New Zealand published an estimate of the cost of the copyright extension alone at US$50 million in the fullness of time. That is about US$10 per capita. Applied as a ratio to the populations of those TPP parties that will have to extend copyright protection, this puts the transfer into the billion dollar range – e.g., for the six TPP parties that presently have 50-year copyright terms (Brunei, Canada, Japan, Malaysia, New Zealand, and Vietnam), US$10/capita amounts to US$2.9 billion. Similar considerations regarding expanded costs (in this case for healthcare) would apply to TPP countries required by the treaty to extend protection for pharmaceutical patents (the TPP would not have further impact on Canadian pharmaceutical patent law if CETA were ratified; if, however, CETA were not ratified, then the TPP would tend to raise healthcare costs in Canada above what they would be otherwise, requiring a commensurate accounting for welfare impacts).

The distribution of gains from the TPP should thus be adjusted, with a material expansion of the gains made by the United States, and to a lesser extent by Japan, and the gains made by the others shaved (or, respectively, losses deepened). Whether the transfers are actualized, or whether the market response takes the form of dampened demand for the protected product is an open question. Weatherall (2015) examined the impact of the Australia-US FTA on Australian international copyright payments and found no supporting evidence for the relatively large sums that had been forecast on an ex ante basis (e.g., by Dee 2004), or indeed for any effect at all in this regard. At the same time, the negative impact might make itself felt not in terms of increased payments, but in terms of an opportunity cost – derivative innovation that did not take place (Khanna 2014).

The bottom line is that the TPP was a difficult negotiation that ended in a small and unbalanced outcome. In the end, the parties were not prepared to put that much money on the table in terms of liberalizing sensitive areas or in terms of opening up services markets.

Conclusion

This E-Brief focuses on the numbers and attempts to establish the approximate order of magnitude of the impact of the TPP on Canada and its TPP partners. Taking into account so-called "legal inflation" (the incorporation of aspirational statements and non-binding commitments) and considering whether TPP measures add value over and above other pre-existing commitments of the parties, we find that the TPP generates a relatively small trade impact for Canada, and a commensurately small impact on GDP and economic welfare.

Measured in conventional terms, Canada makes modest gains from participating and would forgo these gains and experience additional modest losses from not participating. The TPP is, however, a complex agreement with many potential ramifications; the public consultations underway at the time of writing and debates on ratification will, no doubt, bring to light some of these additional impacts.

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