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Quantifying CUSMA: The Economic Consequences of the New North American Trade Regime

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Executive Summary

The Canada-United States-Mexico Agreement (CUSMA) has a number of liberalizing elements, including expanding US access to Canada's dairy and poultry markets; raising the threshold for tax and duty-free entry into Canada and Mexico of low-value goods imports; and easing some barriers to services trade.

More controversially, the CUSMA increases intellectual property protection, which promises to generate some net benefit for the United States at Canada's expense, and introduces new disciplines relative to NAFTA on cross-border data flows and data localization, the impact of which cannot as yet be quantified.

By far the most quantitatively significant effects, however, are the more stringent rules of origin that must be met for products to qualify for duty-free market access under the CUSMA. These new rules achieve the immediate objectives of the Trump administration to shift industrial activity – especially in the automotive sector – into the United States, but by increasing trade diversion, they impact negatively on economic welfare and efficiency.

There are only very limited gains in trade facilitation. Meanwhile, more stringent border enforcement promises some border thickening, especially for goods entering the United States.

The negative elements outweigh the positives and the CUSMA results in lower real GDP and welfare for all three parties, with Mexico being hardest hit and the United States the least. Canada's real GDP stands to shrink by -0.4 percent and economic welfare to fall by over US$10 billion.

The major caveat to these results is the extent to which the longer-run investment climate in Canada (and Mexico) has been damaged by the weakening of the North American Free Trade Agreement (NAFTA) institutional framework through the introduction of a sunset clause; the elimination of investor state dispute settlement; the grudging way the United States accepted retention of the NAFTA Chapter 19 binational panel review of trade remedy cases; and, perhaps most importantly, the failure of the new agreement to eliminate the application of US section 232 national security tariffs on imports from its North American partners.

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1 Introduction and Overview

This study develops a quantitative analysis of the impact of the Canada-United States-Mexico Agreement (CUSMA), as signed on 30 November 2018. The CUSMA represents a major overhaul of the now-dated 1994 North American Free Trade Agreement (NAFTA) and is based largely on the Trans-Pacific Partnership (TPP) text, signed in 2016, from which the Trump administration withdrew in January 2017.

The CUSMA is unusual in that it has little traditional tariff liberalization, introducing only minor changes to market access compared to the NAFTA, while, at the same time, introducing a number of features that promise to be more restrictive of trade. In particular, it introduces more restrictive rules of origin (ROOs) for accessing the CUSMA's preferential zero tariffs;[1] increases uncertainty about future market access by weakening the institutional framework of the NAFTA through a sunset clause, which in effect raises non-tariff barriers (NTBs) for services and investment; and only marginally improves the border regime for goods entering Canada and Mexico, while making the border thicker for goods entering the United States. In general, it seeks to shifts the net benefits of the NAFTA towards the United States, rather than seeking a win-win outcome; and, in particular, it seeks to repatriate industrial activity for the United States based on the Trump administration's linking of re-industrialization with national security.

1.1 Main Sources of Economic Impact

The main CUSMA improvements in market access are import quota expansions for the United States in the Canadian dairy and, to a lesser extent, poultry markets (the liberalizing effect of which is partially offset by some forced trade restrictions on Canada's dairy exports to third parties); and higher de minimis thresholds for the imposition of customs duties and taxes, and application of import procedures, for cross-border sales into Canada and Mexico.

Related to the tariff, automotive sector ROOs feature a higher regional value content (RVC) and new requirements concerning wage levels in stipulated shares of automotive production ("labour value content" or LVC) for products to qualify as originating under the CUSMA. This is expected to reduce Mexico's tariff-free access to the US auto market and raise costs for the industry. The CUSMA provides for the development of uniform regulations (a NAFTA innovation), which will help ensure that administrative uncertainty does not exacerbate the increased restrictiveness of the CUSMA regime. There is also some offset through higher de minimis limits for full ROOs certification; however, the practical impact of the latter measures is not yet clear.

The trade facilitation rules in the CUSMA build on those negotiated in the Trans-Pacific Partnership (TPP) and the World Trade Organization (WTO) Trade Facilitation Agreement (TFA). While there are some modest improvements upon existing commitments as per the TFA (which supersedes

1 ROOs determine whether a product qualifies for duty-free access under a trade agreement. To qualify as "originating," a product must be sufficiently transformed through manufacturing processes in the free trade zone; this is typically met through a "change of tariff classification" (CTC) rule. In some cases, it might have to have a specified amount of "regional value content," which is typically a more stringent requirement.

the 1994 NAFTA measures as the baseline for trade facilitation practice), there is also language about stricter border controls, which signals another round of border thickening for the United States in particular.

Some of the more significant CUSMA measures relate to intellectual property (IP) and data.. The CUSMA expands IP protection by extending the term for copyright in Canada from 50 to 70 years and by raising the term of protection for biologic pharmaceuticals to 10 years.[2] As regards the measures on data, these include commitments to (i) free flow across borders of data related to business activities of covered entities, with a carve-out for measures required to achieve "legitimate" public policy objectives, and (ii) the non-use of data localization measures, which typically mandate that the data of a country's citizens be stored within the borders of that country, without an explicit public policy carve-out. In the latter regard, the CUSMA provides less policy room than the Comprehensive and Progressive Partnership for Trans-Pacific Trade (CPTPP), while at the same time leaving undeveloped the scope for policies to address data's role as part of the intangible infrastructure of a digital economy,[3] privacy,[4] or data's function as the essential capital for the emerging data-driven economy (i.e., data as the "new oil").

This policy area is only beginning to be explored in the context of the emerging data-driven economy; accordingly, there is little empirical guidance for quantification. Moreover, the expansive interpretation by US authorities of "national security" in respect of using Huawei equipment in the build-out of 5G networks implies that security requirements go well beyond localization requirements to include even sourcing of equipment. How much latitude this provides for public policy is a wide-open question.

As well, it is important to recognize that Canada and Mexico have already signed onto similar data rules in the context of the CPTPP.[5] Given that rules tend to apply multilaterally, the CUSMA's marginal contribution is to bind the United States. In this light, it is simply not clear what effect the CUSMA implies for the North American economy through its data provisions.

2 Biologic drugs are produced from living organisms or contain components of living organisms. The pharmaceutical industry argues they take longer to develop and hence should benefit from longer data exclusivity protection (i.e., before the data can be used by generic drug manufacturers).

3 Examples of the intangible infrastructure of the digital economy include the virtualization of telecommunications servers and switches, which will be vastly expanded in fifth generation (5G) networks, as well as the code that runs physical infrastructure, including the software that manages the electricity grid and will manage smart road systems for driverless cars. Various databanks will be part of all these systems and vast amounts of data will run through these systems, including the real-time flows that manage the systems. Information about a nation's physical infrastructure is often subject to national security measures; the information flows within the intangible infrastructure are likely to attract the same concerns. Insofar as infrastructure is publicly run, security measures are not subject to the CUSMA's free flow of data and data localization requirements, which are limited to data related to the business of covered entities. However, these issues might arise when platform companies, such as Google, enter into management of the physical infrastructure through smart cities programs, as proposed in the Sidewalk Toronto project.

4 For example, the measures addressing personal information protection requirements, which call for a legal framework to protect the personal information of users of digital trade, include a footnote that acknowledges that enforcing voluntary undertakings of enterprises related to privacy is sufficient to meet this obligation. This falls well short of the requirements under the European Union's (EU) General Data Protection Regulation (GDPR), which might constrain policy responses to data-related problems and/or create problems for firms operating in both the North American and EU markets.

5 There are some differences in language: in particular, the CUSMA removes exceptions for localization of computing facilities as a condition of doing business. Accordingly, the public policy exceptions must be based on the cross-border flow of data. See Lee-Makiyama (2018) for a discussion.

Finally, the negotiating tactics and several features of the CUSMA raise uncertainty about the future durability of the trade and investment arrangements. In particular, through a number of acts of omission and commission, it introduces a new level of uncertainty about effective access to the US market that will tend to work – and from the US side intentionally so – to cause investors to choose the United States over Canada or Mexico:

- The CUSMA does not prevent the future application of Section 232 tariffs, which have been revived by the Trump administration for ad hoc protectionist purposes. The agreement pointedly did not remove the Section 232 tariffs on steel and aluminum, although a subsequent agreement was reached to remove them, subject to certain conditions. US forbearance in applying Section 232 tariffs to Canada and Mexico on autos, should those measures be adopted, is only incorporated through a side letter.
- Negative signals about future market access are sent by the new quotas on duty-free access into the United States for automotive products and the threat of loss of market access should a party sign a free trade agreement (FTA) with a non-market economy (Section 32.10).
- The introduction of a sunset clause,[6] the lapse of investor-state dispute settlement (ISDS) for United States-Canada investment, the grudging retention of the Chapter 19 binational panel review mechanism, and the US resistance to fixing the dysfunctional state-to-state dispute settlement provisions in NAFTA (Lester 2019) do not inspire confidence in the robustness of the institutional framework for trade and investment going forward.

Uncertainty acts like an NTB to trade and investment (Crowley and Ciuriak 2018); accordingly, these measures point to reduced levels of intra-North American trade, in particular through reduced entry into trade by new exporters and reduced investment in Canada and Mexico by companies targeting the North American market as a whole. These general uncertainty effects are not incorporated in the main reported results of this study since the scale of the investment shock would be highly speculative. However, they constitute a major caveat to the results for Canada and Mexico in particular on investment, but also for the United States from the weaker external environment they create for US exports.

1.2 Summary of the Modelling Results

Table 1 sets out the main results for the CUSMA parties relative to the current (NAFTA) situation, and compares these to the impacts from NAFTA lapsing (based on prior analysis of the United States walking away from the NAFTA; Ciuriak et al. 2017b). As can be seen, the CUSMA impacts are negative for all three parties, but leave the three parties marginally better off than under a scenario in which NAFTA lapses altogether (but in which Canada and Mexico continue to enjoy free trade under the CPTPP). The biggest difference between the two scenarios is for Mexico. For Canada and the United States, the difference is minor.

The protectionist elements in the CUSMA, which dominate any positive effects of the agreement, are comparatively modest compared to the scale of the tariff increases under NAFTA lapsing. Nonetheless, the economic impacts of the two scenarios are similar in order of magnitude. This reflects the fact that the CUSMA NTBs, which raise costs, have a more damaging effect on economic welfare and efficiency than do tariffs that would be imposed under the NAFTA lapsing scenario, which are akin to simple transfer payments. The relative scale of outcomes is

6 While all trade agreements incorporate provisions for exit by a party, a basic intent of trade agreements is to create certainty of market access for firms. The CUSMA sunset clause terminates the agreement after 16 years, unless the parties agree to extend the agreement upon review at the 6th anniversary of the agreement. This reduces long-run certainty for trading firms of the conditions of market access.

Table 1: Summary of Main Results

	CUSMA		NAFTA Lapsing	
	Real GDP (*percent change*)	**Welfare** (*US$billions at 2019 prices*)	**Real GDP** (*percent change*)	**Welfare** (*US$billions at 2019 prices*)
Canada	-0.40	-10.8	-0.49	-13.9
Mexico	-0.79	-14.9	-1.09	-23.0
United States	-0.10	-17.4	-0.10	-22.4

Note: The "NAFTA Lapsing" figures from the latter study are for the scenario in which NAFTA lapses, but Canada and Mexico continue to enjoy free trade under CPTPP terms. Further, the figures reported in Ciuriak et al. (2017b) are converted from original GTAP V9 data in 2011 USD to 2019 USD here. Finally, note that the CUSMA results reported here do not include an estimate of the impact of the increase in general uncertainty about future market access in the United States.

Source: Authors' calculations; Ciuriak et al. (2017b).

consistent with the understanding that tariffs are a relatively efficient form of protection, while NTBs are inefficient.

Overall, the impacts of the CUSMA are relatively small and, in the context of a growing North American economy, would not likely be observed as outright declines in trade and economic output, but rather in less robust growth than otherwise might have been the case. Given that the uncertainty of CUSMA even going ahead has already dampened economic growth, the observed effect would likely be a rebound on market relief; however, this should not be interpreted as indicative of the assessment of the agreement by markets compared to the status quo of an in-force NAFTA.

1.3 Comparison to Other Studies

There is limited empirical analysis of the CUSMA as negotiated in the public domain. An International Monetary Fund (IMF) study by Burfisher et al. (2019) provides estimates for all three parties; United States International Trade Commission (USITC) (2019) provides estimates for the United States alone.

The Burfisher et al. (2019) study[7] takes into account five provisions of CUSMA: (i) higher vehicle and auto parts RVC requirements; (ii) new LVC requirements for vehicles; (iii) stricter ROOs for CUSMA textile and apparel trade; (iv) agricultural trade liberalization that increases US access to Canadian supply-managed markets and that reduces US barriers on Canadian dairy, sugar and sugar products, and peanuts and peanut products; and (v) trade facilitation measures.

In contrast to the present study, which evaluates the CUSMA trade facilitation measures using the Organisation for Economic Co-operation and Development (OECD) Trade Facilitation Indicators (TFI) index against a post-WTO TFA

7 These estimates are derived using a multi-region computable general equilibrium (CGE) model. In this study, the model used is static in structure. Like the present study, Burfisher et al (2019) use the Global Trade Analysis Project (GTAP) v10 database with a base year of 2014. Notable innovations include recalibration of the protection data based on ad valorem (value-based) tariffs from the World Bank's World Integrated Trade Solution, ad valorem equivalents of ROOs, ad valorem equivalents of NTBs to services trade drawn from Fontagné et al. (2016), an updated baseline that reflects the CPTPP, and the tariffs imposed by the parties and others in the context of the trade wars through August 2018. Another notable innovation is to split the automotive sector into vehicles and parts to better apply the CUSMA ROOs provisions.

Table 2: CUSMA Impacts, Burfisher et al. (2019)

	Real GDP	Welfare 2019 US$Millions
Canada	0.02	795
Mexico	-0.01	647
United States	0.00	-860

Note: The welfare estimates are converted from 2014 US$ to 2019 US$ for comparability with the present study. The conversion factor is 1.0836.

Source: Burfisher et al. (2019).

Table 3: CUSMA Impacts – USITC Assessment

	Impact of Provisions Reducing Policy Uncertainty		
	None	**Moderate**	**High**
US Real GDP	-0.12	0.35	1.21
US Real GDP (US$billions)	-22.6	68.2	235

Source: USITC (2019), Tables 2.6 and 2.7.

baseline, Burfisher et al. (2019) make an assumption of a 1/10th of a percentage point reduction in trade costs across all sectors save textiles, apparel, dairy, and vehicles and parts, based on the Hillberry and Zhang (2015) estimate that global adoption of best practices in trade facilitation pursuant to the TFA could reduce trade costs by about 1 percent. The main results are reported in Table 2.

Burfisher et al. (2019) report an overall welfare gain from the CUSMA; however, this stems entirely from trade facilitation gains of about US$1.4 billion, which offset the net losses from the other effects. As noted, the assumption that drives the trade facilitation gains is not grounded in the commitments under the CUSMA, which improve only very marginally upon the parties' WTO TFA commitments, but rather represent a discount on the estimates of the gains from the TFA itself. Moreover, the tightening of border clearance measures in the CUSMA to prevent circumvention is not factored in. Otherwise, the effects of the CUSMA in this study are essentially a wash-out with negligible real gross domestic product (GDP) impacts and minor welfare impacts, which reflect price changes that might reflect primarily the modelling protocol.

USITC (2019) by contrast finds a fairly significant effect on the US economy from the CUSMA. This study[8] provides a highly detailed assessment of the CUSMA as negotiated. Its main finding is that, excluding the data provisions that reduce future uncertainty about data regulations,

8 This study uses a CGE model based on the GTAP framework. The simulation is run in a comparative static mode. Results for Canada and Mexico are not reported. The base year of the model was updated from 2014 to 2017, which reduces somewhat the comparability of the results with the present study.

the CUSMA has a negative impact on the US economy of about -0.12 percent, which in value terms translates into about a loss of US$22.6 billion. These figures are close to those obtained in the present study.

The USITC study, however, attributes a very powerful impact to the provisions governing free flow of data and prohibiting data localization. We make three observations on these latter estimates:

- First, they do not reflect the fact that Canada and Mexico are already subject to similar (although not identically worded) disciplines on data protectionism; accordingly, the CUSMA primarily binds the United States to its current practices, and it is not clear that the CUSMA will have a big effect there. This baseline issue (i.e., the baseline against which the CUSMA is evaluated is pre-CPTPP) is acknowledged in the USITC study.
- Second, the highly expansive reading of national security that the Trump administration has taken in the Internet of Things (IoT) area suggests that all three parties will have considerable latitude to develop regulations on data flow to ensure national security in the backbone services sectors (communications, transportation, power, and finance) at least.
- Third, regulation to address issues that have flared with the digital transformation in areas ranging from privacy, to competition policy, to taxation, to protection of democratic processes is being actively pursued worldwide. The ultimate framework for data regulation remains unclear.

We decline to make estimates of the possible effects of the data provisions for these reasons. Excluding the data uncertainty effect, our results are, as noted, broadly in line with the USITC results as regards the scale of the impact on the US economy.

The rest of this report is organized as follows: Section 2 provides a non-technical overview of the modelling framework and walks through the derivation of the policy shocks. Section 3 presents the results. Section 4 concludes. Appendix A outlines the modelling methodology. Appendix B describes the policy shock derivation in detail. Appendix C provides the detailed sectoral results. Appendix D details the services and investment Impacts.

2 Implementation of the CUSMA Policy Shocks

2.1 Modelling Methodology

We develop our evaluation of the CUSMA using simulations on a computable general equilibrium (CGE) model based on a dynamic specification of the Global Trade Analysis Project (GTAP) model, which is further modified to directly represent goods and services trade conducted through foreign affiliates, as well as on a cross-border basis, and to reflect the impact of liberalization of foreign direct investment (FDI) (Ciuriak et al. 2017a).

We assess the impact of the CUSMA against a baseline that reflects an in-force NAFTA, as well as improvements upon that regime due to the entry into force of the WTO TFA. For Canada and Mexico, we also take into account the entry into force of the CPTPP.

The policy shock covers both tariffs and NTBs. As regards market access for goods, the policy shock takes into account the managed trade elements (e.g., dairy quota changes) and the impact of the new ROOs regime on specific industrial sectors (principally autos and textiles and clothing).

To evaluate NTBs, we consider the extent to which the CUSMA reduces/increases the parties' scores on indexes measuring the trade restrictiveness of regimes for goods, services, and investment.

- For goods, we examine possible improvements upon the WTO TFA commitments, as measured by the OECD TFI.
- For services, we consider the liberalization implied by the services commitments evaluated on the basis of changes to the parties' scores under the OECD's Services Trade Restrictiveness Index (STRI).
- For investment, we consider the changes implied against the parties' scores on the OECD's Foreign Direct Investment Restrictiveness (FDIR) index.

For services and investment, we take into account the value of binding market access commitments – that is, the certainty provided by CUSMA

Table 4: Policy Shock Summary

Measure	Shock Constructionw	Comment
Industrial Goods Tariffs: raising *de minimis* levels for ROOs requirements	De Minimis tariff savings in Canada rise from about US$125 millions in 2020 to a little over US$300 millions in 2025. Mexico's de minimis savings are less than 5% those of Canada due to less liberalization and much smaller levels of cross-border ecommerce over the projection horizon.	• Liberalizing
Agricultural Market Access	• Canadian import quota expansions from the United States of US$226 million by 2025 for dairy and US196 million for poultry. • US$50 million diafiltered milk added to US chemicals exports. • Canada's exports to the "rest of the world" reduced by US$70 millions per annum. • Wheat marketing NTB on Canadian imports from US removed – quantitative impact unclear. • US phases out out-of-quota peanut tariff, and expands TRQs for sugar and dairy from Canada.	• Trade liberalizing welfare effects contingent on quota administration. • Trade restrictive • Unclear impacts • Quantitative impacts positive but magnitude likely minor.
Trade Facilitation (general)	• CUSMA commitments represent a small improvement on current level of border practice as committed under WTO TFA. • Tightened anti-circumvention/input tracking results in border thickening.	Liberalizing for all three parties. Small net negative impact in the US.

ROOs: Automotive	Changes imply higher cost for NA production and trade and imposition of an NTB on NA imports from third countries.
	• LVC: 0.75% tariff increase on US imports from Mexico;
	• RVC raised to 75%:
	  • NTB on Canadian and Mexican imports of auto parts from third parties.
	  • Diversion of US sourcing for domestic production to third party sources.
	• More complex rules and sub-optimal allocation – 1% cost on traded output: cost increase of 0.8% for Canada and Mexico; 0.3% for USA.
		Negative welfare impact due to higher costs, sub-optimal sourcing, trade diversion, tariff incidence increasing.

ROOs: Textiles and Apparel	Additional ROOs requirements on sewing thread: 0.5% trade diversion in Canada and Mexico through commensurately scaled NTBs on 3rd party sources. Assumes full utilization of tariff preference levels.	Negative welfare impact due to higher costs, sub-optimal sourcing.
ROOs: Production Inputs	• Higher RVC required for chemicals and steel result in some trade diversion away from third party sources. Given highly regionalized North American market, we assume this amounts to 10% of third party imports into Canada and Mexico replaced by imports from the United States. • Tighter administration of ROOs results in a cost increase for traded production: 0.27% cost increase in industrial goods for Mexico; 0.17% cost increase in Canada; and 0.025% cost increase in the US, given NAFTA export shares.	Negative welfare impact due to higher costs, sub-optimal sourcing.
Goods Regulation	Four product-specific annexes and a general "good regulatory practices" (GRP) chapter. • GRP • Telecoms: no restrictions on encryption imports • Pharma: mainly redundant • Cosmetics: small and maybe no impact • Chemicals: unclear implications	• No impact • No material impact • No material impact • No material impact • No material impact

Table 4: Continued

Measure	Shock Constructionw	Comment
Services	• Some liberalization in financial services by all three parties, plus some in communications and "other transport" (US) and in communications and business services (Mexico. • Unbinding of services market access except in specified sectors results in increased uncertainty of market access.	Trade Liberalizing Increased uncertainty, thus more restrictive
Investment	• No change for goods sectors investment commitments. • Services sectors investment commitments weakened by unbinding of some commitments on market access.	No change Increased restrictiveness
Intellectual Property	• Biologics term extension: cost increase for Canada of US$200 millions, growing to US$268 millions by 2025; smaller increases for Mexico. • Copyright term extension in Canada: annual royalty payment outflows rising from US$30 millions in 2020 to about US$40 millions in 2025; corresponding increased inflows of royalties of US$12 millions in 2020, rising to almost US$16 millions in 2025.	Increased transfers from Canada and Mexico to US. Transfers represent welfare gain for US. Impacts on innovation of the copyright extension are negative for Canada.

Source: See derivation of the shocks in the body of the paper.

commitments not to reduce market access in the future in areas where the CUSMA level of market access improves upon the "bound" level under the parties' WTO commitments under the General Agreement on Trade in Services (GATS).

2.2 Derivation of the Policy Shock

Table 4 summarizes the key quantifiable elements of the agreement. The derivation of the shocks is explained in detail in Appendix B.

3 Results

Table 5 summarizes the macroeconomic impacts of the CUSMA on the global economy. Generally, the trade-restrictive features outweigh the more modest liberalizing measures and result in an overall negative impact.

Within North America, the impacts fall disproportionately heavily on Canada and Mexico, but also impact the United States, notwithstanding the features designed to shift benefits towards the United States. Accordingly, North American output and welfare fall by about US$43 billion once the full effects of the policy changes have been absorbed and a new equilibrium restored.

For third parties, the CUSMA is a net positive, albeit a minor one. Effectively, the shift to a more protectionist policy in North America acts as a tax on North American exports, undermining the region's global competitiveness and leading to market share losses abroad.

However, the global impacts are dominated by the North American outcomes and global welfare declines by over US$40 billion, while real GDP shrinks by 0.03 percent.

Table 6 breaks down the impacts by source. The major impacts come from the restrictive ROOs measures on goods trade, which offset the minor tariff liberalization effects.

The services impacts are net positive for all three parties, but very small; in terms of real GDP, the impact is virtually nil for Canada and the United States and only register at the third decimal point

Table 5: CUSMA Impact on Global Output and Welfare

	Real GDP (*percent change*)	Welfare (*US$millions at 2019 prices*)
Canada	-0.40	-10.8
Mexico	-0.79	-14.9
United States	-0.10	-17.4
China	0.00	-0.2
EU28	0.01	1.0
Memo: NAFTA	-0.18	-43.0
Memo: World total	-0.03	-40.7

Source: Authors' calculations.

Table 6: CUSMA Sources of Impacts

	Real GDP (% change)				Welfare (USD billions at 2019 prices)			
	Goods	Services	FDI	IP	Goods	Services	FDI	IP
Canada	-0.371	0.000	-0.024	-0.008	-9.79	0.02	-0.58	-0.44
Mexico	-0.797	0.004	0.003	-0.003	-14.89	0.06	0.06	-0.11
United States	-0.097	0.000	0.000	0.001	-17.95	0.11	0.00	0.46

Source: Authors' calculations.

in percentage terms for Mexico.

The FDI measures (which do not take into account the impact of the CUSMA on investment from the threat of restricted future access to the US market) have a modestly negative impact on Canadian real GDP, but otherwise do not affect the region materially (note that the FDI impacts reported are the marginal impacts on FDI stemming from the CUSMA investment measures and not the change in FDI driven by the goods market access measures).

The IP measures reduce Canadian welfare by about US$440 million and Mexico's by US$110 million, while raising US welfare by about US$460 million.

Table 7 summarizes the macroeconomic impacts for the North American economies. While the net protectionist features of the CUSMA result in overall negative economic welfare impacts for all parties, the United States experiences a sufficient increase in prices to generate a modest increase in the value of its GDP at post-shock prices, despite the decline in real GDP of -0.096 percent. By contrast, for Canada and Mexico, the stronger negative impacts on real GDP due to the cost increases in trade with United States drive prices down, resulting in a change in the value of GDP that is larger in negative terms than the welfare impact.

The way the CUSMA hits the three economies varies. For Canada, the decline in output is led

Table 7: CUSMA Macroeconomic Impacts on the North American Economies

	Canada	Mexico	United States
Macroeconomic Impacts			
Economic Welfare (US$millions)	-10,782	-14,876	-17,378
Economic Welfare (% change)	-0.493	-0.825	-0.089
GDP Value Change (millions)	-15,713	-24,901	3,602
GDP Value Change (%)	-0.606	-1.210	0.016
GDP Volume (% change)	-0.404	-0.794	-0.096
GDP Deflator (% change)	-0.203	-0.420	0.112
Terms of Trade (% change)	-0.045	0.101	0.088
CPI (% change)	-0.148	-0.427	0.086
GDP by Expenditure Category			
Consumption (% change)	-0.533	-0.835	-0.092
Government Expenditure (% change)	-0.347	-0.512	-0.052
Investment (% change)	-0.395	-1.489	-0.139
Total Exports of Goods & Services (% change)	-0.644	-1.180	-0.096
Total Imports of Goods & Services (% change)	-0.802	-1.657	-0.089
Trade Balance (US$millions)	1,579	4,782	2,338
Factor Markets			
Capital Stock (% change)	-0.098	-0.406	-0.033
Real Wage of Unskilled Labour (% change)	-0.239	-0.406	-0.031
Real Wage of Skilled Labour (% change)	-0.235	-0.490	-0.040
Jobs (Number)	-16,427	-87,781	-20,370
Productivity (% change)	-0.321	-0.638	-0.084

Note: Job impacts are based on a labour supply elasticity of 0.35 to the real wage.
Source: Authors' calculations.

by trade as exports and imports decline by -0.64 percent and -0.80 percent respectively, compared to a decline in real GDP of -0.40 percent. In the United States, by contrast, the decline is led by investment, which shrinks by -0.14 percent, compared to the smaller real GDP decline of -0.1 percent. In Mexico, imports fall by -1.66 percent reflecting the weakness in domestic demand.

In labour markets, the CUSMA promises job loss, real wage declines, and lower productivity in all three economies. Real wages decline less than productivity; given that wages have generally failed to keep up with productivity, the simulation may be understating job loss.

Overall, the simulation results are consistent with expectations based on first principles analysis that

Table 8: CUSMA Sectoral Impacts: Canada

	Bilateral (US) Exports (US$ millions)	Bilateral (US) Imports (US$ millions)	Total Exports (US$ millions)	Total Imports (US$ millions)	Domestic Shipments (US$ millions)	Total Shipments (US$ millions)	Total Shipments (percent change)
Agriculture and Food	-12	263	118	62	-1,392	-1,273	-0.57
Dairy	5	252	-68	226	-703	-771	-2.64
Resources	-766	-469	-438	-759	63	-376	-0.07
Manufacturing	-3,135	8,133	-3,553	-2,320	3,695	142	0.02
Industrial Materials	-1,254	2,473	-1,330	-2,210	3,764	2,434	1.02
Automotive	-1,121	3,567	-1,438	406	657	-781	-0.63
Services	139	-766	699	-1,743	-17,631	-16,932	-0.54
Total	-3,774	7,160	-3,174	-4,760	-15,265	-18,439	-0.40

Note that Canada's bilateral trade impacts reflect trade with the United States.

Source: Calculations by the authors.

the CUSMA makes the United States a relatively bigger fish in a smaller pond and that that the US' economic weight enables it to extract terms of trade benefits, albeit at some cost to itself in terms of jobs, economic efficiency, and economic welfare – and reduced global competitiveness.

Table 8 sets out the main sectoral impacts on Canada. Tables 9 and 10 provide corresponding data for Mexico and the United States. The detailed sectoral results are set out in Appendix C.

The impacts are consistent with expectations based on the intended outcomes of the negotiation from the US perspective. Canadian agriculture is negatively impacted with total shipments (the sum of total exports plus domestic shipments) declining by almost US$1.3 billion or -0.57 percent. The major impact is on the dairy sector, where shipments decline both due to the ceding of market share to US dairy imports and to declining domestic demand from the macroeconomic consequences of the agreement. The agri-food sector makes up some ground by expanding exports to third parties, but not enough to offset the negative impacts from North American trade.

Resource sectors decline marginally, mainly on declining exports to the United States. Again, domestic shipments increase, but this falls short of offsetting the reduced flows to the United States. The impact is marginal, however, with total shipments falling by US$376 million or -0.07 percent.

Manufacturing as a whole is neutrally impacted with total shipments rising marginally by 0.02 percent. This reflects divergent outcomes within the sector. Industrial materials (chemicals and metals), which are the targets for US reindustrialization, lose ground in exports to the US market, but more than make that up in the domestic market, reflecting the increased demand for North American production inputs due to the ROOs changes. Total shipments rise by US$2.4 billion or 1.0 percent. The automotive sector, however, loses market share in the United States and faces higher imports from the United States. While the ROOs requirements for additional domestic parts production drives some increase in domestic sales, the sector retreats, with a decrease in total shipments of US$780 million or -0.63 percent.

Table 9: CUSMA Sectoral Impacts: Mexico

	Bilateral (US) Exports (US$ millions)	Bilateral (US) Imports (US$ millions)	Total Exports (US$ millions)	Total Imports (US$ millions)	Domestic Shipments (US$ millions)	Total Shipments (US$ millions)	Total Shipments (percent change)
Agriculture and Food	130	-458	258	-612	-1,695	-1,437	-0.49
Dairy	4	-90	8	-108	-258	-250	-0.71
Resources	-273	-747	68	-994	-804	-736	-0.20
Manufacturing	-5,760	4,530	-6,487	-8,149	7,739	1,252	0.15
Industrial Materials	-267	2,532	-298	-2,933	4,564	4,266	2.00
Automotive	-4,198	3,186	-5,066	-1,726	3,727	-1,338	-0.61
Services	249	-176	521	-667	-27,163	-26,642	-1.37
Total	-5,653	3,150	-5,640	-10,422	-21,923	-27,563	-0.80

Note that Mexico's bilateral trade impacts reflect trade with the United States.

Source: Calculations by the authors.

Services sectors also decline due to the negative income effects of the agreement and the consequent decline in general domestic demand.

The impacts on Mexico in sectoral terms follow the same pattern as in Canada: the agri-food and resource sectors decline modestly, manufacturing as a whole is marginally in the black, but with divergent outcomes for industrial materials (positive) and automotive (negative), while services bear the brunt of the negative effects due to declining income and domestic demand.

The US impacts suggest that the CUSMA is broadly in line with the Trump administration's objectives in terms of sectoral realignment of the US economy. The agri-food sector, however, experiences negative impacts from the decline in demand in its major markets in Canada and Mexico. The dairy sector sees a good part of its gains in Canada lost due to slower exports to Mexico. Resource sectors decline on generally lower demand for raw materials due to the negative real effects of the agreement.

Manufacturing, however, experiences a substantial increase in the value of its shipments and in value added, led by the automotive sector. Since the higher North American RVC requirements serve to raise Canadian and Mexican automotive costs more than US costs (since over 80 percent of US production is destined for its home market and is not affected by CUSMA ROOs requirements), US domestic shipments pick up, as well as bilateral exports to Canada and Mexico. Automotive imports from Canada and Mexico decline to help fuel the US gain in domestic market share.

The services sectors decline, which is the necessary corollary of a push to re-industrialize the US economy.

4 Discussion and Conclusions

The United States initiated the renegotiation of the NAFTA with the objective of re-balancing trade within North America and repatriating industrial activity within its own borders. The CUSMA pursues these objectives through a variety of means, primarily through more restrictive ROOs for industrial inputs and increased uncertainty on future access into the US market to incentivise FDI

Table 10: CUSMA Sectoral Impacts: United States

	Bilateral (US) Exports (US$ millions)	Bilateral (US) Imports (US$ millions)	Total Exports (US$ millions)	Total Imports (US$ millions)	Domestic Shipments (US$ millions)	Total Shipments (US$ millions)	Total Shipments (percent change)
Agriculture and Food	-189	124	-217	115	-456	-673	-0.04
Dairy	160	9	144	16	34	178	0.09
Resources	-1,169	-1,082	-1,287	-446	232	-1,055	-0.03
Manufacturing	12,532	-8,981	4,734	-844	19,864	24,598	0.33
Industrial Materials	4,924	-1,549	3,921	601	3,039	6,960	0.35
Automotive	6,720	-5,366	1,905	-3,484	16,646	18,552	1.90
Services	-942	388	-1,317	718	-1,890	-3,207	-0.01
Total	10,232	-9,550	1,912	-458	17,751	19,663	0.05

Note that Mexico's bilateral trade impacts reflect trade with the United States.

Source: Calculations by the authors.

targeting the North American market to locate within the United States.[9]

Trade theory suggests that trade and investment diversion comes with a welfare cost. A much-studied example is the US Jones Act, which requires that coastal shipping in the United States be on US-built ships, crewed by Americans, and flying the American flag, with the aims of ensuring that the United States has a maritime fleet and the associated industrial capabilities to provide support to its navy in wartime. The *Jones Act* has been demonstrated to impose substantial welfare and efficiency costs on the United States (see, e.g., Grabow et al. 2018; USITC 1999). As Crowley and Ciuriak (2018) comment, the Trump administration's trade policy strategy can be characterized as the "Jones Act on land." The CUSMA roll out of this policy framework on a broader basis can thus be expected to impose damage on the US economy analogous to the damages the *Jones Act* has wrought in its sphere.

To the extent that our construction of the shock file reasonably captures the likely effect of the various elements of the policy package, the simulations suggest that the United States succeeded in its immediate aim of increasing the role of heavy industry in the US economy. Manufacturing expands, led by the automotive sector, while primary sectors and services sectors shrink. At the same time, the simulations also suggest that the United States will bear the welfare and efficiency costs that trade theory predicts: the CUSMA reduces US real GDP by -0.1 percent and household welfare declines by over US$17 billion.

Given that the negotiation of the CUSMA was conducted under threat of NAFTA lapsing, it is of interest to compare the outcomes under these two scenarios based on a similar modelling approach. As can be seen in Table 11, the CUSMA outcome is superior to NAFTA lapsing, but only quite marginally so. Indeed, the United States is essentially indifferent to the two outcomes

9 See Ciuriak (2019a) for a commentary on the evolution of US trade policy under the Trump presidency.

Table 11: CUSMA vs NAFTA Lapsing

	CUSMA		NAFTA Lapsing	
	Real GDP (percent change)	Welfare (US$millions at 2019 prices)	Real GDP (percent change)	Welfare (US$millions at 2019 prices)
Canada	-0.404	-10.78	-0.494	-13.15
Mexico	-0.794	-14.88	-1.091	-24.86
United States	-0.096	-17.38	-0.095	-23.20

Source: NAFTA Lapsing data are from Ciuriak et al. (2017b), which was simulated on the GTAP V9 database with a base year of 2011. Accordingly, the welfare base level is adjusted to be consistent with the level of household income in the CUSMA simulation, which is run on the GTAP v10 database with a base year of 2014.

according to our modelling. From the standpoint of bargaining, this comparison suggests that Canada and Mexico did not roll over, but pushed as hard as the traffic would bear.

This perspective on the bargaining outcome does not, however, mean that the United States was unable to exercise its leverage to shift some of the costs of its industrial policy onto Canada and Mexico. This can be seen from the improvement in the US terms of trade (Table 7), which effectively shifts the costs at least partially onto its trading partners. Indeed, the increase in the US GDP deflator (which takes into account the impact of relative price changes on the value of GDP) is sufficient to offset the decline in GDP in quantity terms; thus, the value of US GDP rises by about US$3 billion. A positive terms-of-trade effect for large economies from implementing protection is consistent with trade theory. Theory also explains how retaliation erases these gains and results in a lose-lose outcome (a quantitative illustration of this proposition is provided in the discussion of "Protectionism and Retaliation" by Ciuriak and Xiao 2017). This scope for terms-of-trade gains and cost-shifting thus establishes a "Prisoners' Dilemma" situation, in which a lose-lose outcome can be avoided through a trade agreement (WTO 2009, 21-22). Unfortunately, while the lose-lose scenario might be avoided through negotiations between parties with reasonably equal bargaining power, this was not the case in the power-asymmetric CUSMA negotiations: both Canada and Mexico suffer a steeper decline in GDP in value terms than in real terms (-0.6 percent in value terms versus -0.4 percent in real terms for Canada; and -1.2 percent in value terms vs. -0.8 percent in real terms for Mexico).[10]

A third area where the CUSMA generates a "win" for the United States is the increase in IP protection. Increased capture of rent (i.e., profit above competitive market levels) generates a small welfare gain for the United States. The US rent capture is reflected in a minor negative impact on the Canadian economy; there is no significant

10 One counter-intuitive feature of the simulations in this regard is that Mexico's terms of trade rise. This appears to reflect the dominance of the cost increases that Mexico incurs for adjusting its sourcing to comply with the more restrictive ROOs for North American trade. Canada's terms of trade fall by contrast, but only to a relatively small extent, an outcome that would be explained by the same factor – the rising costs of input sourcing to comply with CUSMA ROOs.

impact on Mexico. The simulation results are consistent with US policy intent. It is important to flag here that the simulations do not address the larger question of whether the marginal increases in IP protection at this stage of the evolution of innovation systems are welfare enhancing, detracting, or benign.[11]

A fourth area where the United States achieved its negotiating objectives is the regime for data flows, although the value proposition for the United States is not clear. For Canada and Mexico, the CUSMA measures marginally reinforce the CPTPP regime that similarly mandates the free flow of data across borders and bans data localization. As we discuss above, we do not see the basis for the very large gains for the US economy in USITC (2019), since these gains are premised on binding Canada and Mexico from enacting protectionist data laws, whereas Canada and Mexico are already subject to similar provisions in the CPTPP. The CUSMA thus primarily serves to bind US practice, the value of which to the US economy is unclear.

As in the case of IP, there is a larger question of the economic implications of data commitments for Canada and other small open economies. At present, it is safe to paraphrase Robert Solow's famous aphorism that "You can see the computer age everywhere but in the productivity statistics" (Triplett 1999) by stating that data is everywhere to be seen but in the national economic and trade accounts. The work on integrating data into the national accounts has only just begun (Statistics Canada 2019) and the methodological issues for addressing the value of data as an asset in trade models has yet to be addressed for the first time. The lack of understanding of the value proposition of measures governing data flows in trade agreements, not to mention the future need for policy flexibility to address the myriad potential problems in the data-driven economy (Ciuriak 2018a), are reasons for caution in entering into binding trade agreements (Ciuriak 2018b).

To conclude, on the basis of the CUSMA measures that lend themselves to at least rough estimates concerning their trade and other economic effects, the agreement has negative impacts on the economic welfare and efficiency of the three parties, but does deliver on some of the major industrial policy objectives of the Trump administration – in particular, re-industrializing the United States and repatriating to some degree the heavy industrial components of manufacturing supply chains.

Going forward, whether the CUSMA is ratified or not, Canada and Mexico have to adapt their economic strategies to the new circumstances of heightened uncertainty of access to the US market, while also taking into account the implications of accelerating technological change in the increasingly data-driven economy, the shifting geo-economic and geo-political landscape, and a multilateral rules-based framework whose future cannot be taken for granted.

11 In a Canadian context, opinions vary. Owens (2019) argues that the CUSMA IP provisions will be beneficial for Canada. Ciuriak and Curtis (2015), conversely, attribute the weak Canadian performance on innovation to aspects of the IP regime advanced in trade agreements that create biases in favour of large companies and throw up stumbling blocks to modern forms of innovation. Taking the middle of the road on this issue, Schwanen and Jacobs (2017) argue that IP measures, as framed in recent trade agreements, are benign: harmonizing basic IP rules with those of Canada's trading partners increases market access for Canadian innovators and IP holders. At the same time the government has means to attenuate some of the potential negatives of these measures. Ciuriak (2019b) argues that the shift of innovation into machine-learning space profoundly changes the context and warrants a major re-think of IP and innovation policy in general.

Appendix A: The GTAP-FDI Model

This appendix provides an overview of the modelling methodology used to generate the simulations. We apply a recursive-dynamic variant of the standard GTAP CGE model, which incorporates FDI to assess the impacts of the policy shocks. The technical specifications of the GTAP-FDI model are described in Ciuriak et al. (2017a).

Background on CGE Models

CGE models integrate a number of 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 take into account 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; and
- A trade account that models the international linkages for each sector of the economy.

The CGE framework generates impact results for the following aggregates:

- National accounts (consumption, investment, government expenditure, real exports, and real imports);
- Economic welfare (equivalent variation);
- Sectoral production, imports, exports, and domestic shipments;
- Impacts on capital formation and labour (skilled and unskilled);
- Price impacts (consumer prices and terms of trade); and
- Government revenue.

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

On the demand side of the model, an aggregate Cobb-Douglas utility function allocates expenditures to private consumption, government spending, and savings so as to maximize per capita aggregate utility. Following a shock, 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 based on the standard Constant Difference of Elasticities demand system in the GTAP model.

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 elasticity of substitution 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 that would have to be made to households to leave them 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

Table A1: Study Sectors for the GTAP-FDI Model Simulations

Agriculture	Resource-based	Manufacturing	Services
Cereal grains	Forestry and Wood Products	Textiles, Apparel and Leather	Construction
Fruit and Vegetables	Fishing	Chemicals, Rubber and Plastics	Trade
Oilseeds and Vegetable Oil	Fossil Fuels	Ferrous Metals	Transportation Services
Other Farming	Mineral Products	Non-Ferrous Metals	Communication
Sugar		Metal Products	Financial Services
Dairy		Automotive	Business Services
Beef		Transport Equipment	Recreational Services
Pork and Poultry		Electronic equipment	Other Services
Food Products		Machinery & Equipment	
Beverages and Tobacco		Other Manufacturing	

Source: Authors' calculations.

monopolistic pure profits in equilibrium. These price mark-ups are reduced by intensified competition under trade liberalization, generating additional welfare gains.[12] A number of recent models incorporate features of heterogeneous firms, which generate productivity gains from reallocation of market shares to more productive firms under trade liberalization.[13] The key distinction across modelling approaches is how they address the relationship between trade and productivity. We address this issue through the modelling protocol, as described below in the discussion of closures, rather than through the specification of the model itself. An appropriate test for reasonableness of the estimates of economic gains is the comparison of the impacts on two-way trade in real terms and the change in GDP. Another key benchmark for reasonableness is the relationship between real wages and productivity. When these relationships are broadly aligned with historical experience, there is greater confidence that the estimates are in a reasonable zone.

For a technical description of the basic GTAP model, see Hertel (1997); for a discussion of the degree of confidence in CGE estimates, see Hertel et al. (2004).

Modelling Setup

The sectoral disaggregation for the global CGE model simulations is set out in Table A1 below; the regional disaggregation is in Table A2.

12 See Roson (2006) for a review of the issues raised by this methodology.

13 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.

Table A2: Regions for the GTAP-FDI Simulations		
USA	China	India
Canada	Taiwan	Argentina
Mexico	Japan	Australia
UK	Korea	ASEAN
EU27	Brazil	ROW
Turkey	Russia	

Source: Authors' calculations.

Baseline

The impact of the CUSMA is assessed against a baseline that reflects an in-force NAFTA. The database for the simulations is the GTAP v10 dataset with a base year of 2014. For the simulations, the database is extrapolated to 2025 using GTAP dynamic tools and drawing on the IMF's World Economic Outlook database (October 2018) for guidance as to growth rates for the projection period. The CUSMA shock is implemented in 2020. The read-out of the impacts is in 2025.

We report impacts in US dollars at 2019 prices. The original GTAP data are in 2014 US dollar prices; these are converted to 2019 values on the basis of the change in the US GD dollar deflator in the IMF World Economic Outlook database of April 2019 between 2014 and 2019; the conversion factor is 1.08357446.

Closures

We use a dynamic version of the GTAP model in which capital supply responds to changes in changes in the rate of return and that incorporates a new dynamic labour supply module in which labour supply is endogenized. Both labour and capital are assumed to be mobile across all sectors within a country. Since capital is mobile internationally, we adopt the external closure that allows the external trade balance to adjust.

Appendix B: Derivation of the CUSMA Policy Shocks

1. Goods Market Access

Industrial Goods Tariffs

Industrial goods tariffs remain unchanged from NAFTA levels; preferential import tariffs remain at zero for originating goods. The CUSMA also retains the NAFTA prohibition on export duties, taxes, and other charges, as well as the waiver of specific customs processing fees.

One notable change as regards applied tariffs is the de minimis thresholds for imposition of customs duties and taxes, and application of import procedures, for imports allowed into Canada and Mexico. Canada and Mexico raised their duty-free thresholds to C$150 and US$117, respectively, and Canada doubled its GST/HST-free threshold to C$40. This promises to reduce the collection of tariffs on cross-border sales through e-commerce, for example.

To quantify this effect, we adopt the estimate of tariff savings developed by McDaniel et al. (2016) of $85 million for a $150 million de minimis (taking the average of estimates for $100 and $200 de minimis levels). Converted to 2014 US dollars for modelling purposes, this amounts to tariff savings of US$61 million. The raising of the VAT-free allowance to C$40 from C$20 should, however, add to the volume of sales through this window. Further, since shipments below de minimis require less paperwork for the major e-commerce express delivery companies and attract less attention from customs, there promises to be some reduction in the time to move small parcels across borders using e-commerce, adding further stimulus to sales. To reflect these latter considerations, we double the estimate of tariff savings to about US$125 million in 2014 US dollars. Finally, since cross-border e-commerce is commanding a growing share of retail sales, we expand this share over the projection horizon, from an estimated 8.1 percent in 2018 to 15 percent in 2025.

Assuming that cross-border e-commerce grows its share in line with the above assumptions, the estimated tariff savings for 2018 would build from about US$125 million to a little over US$300 million in 2025. To convert these tariff savings to ad valorem equivalents, we need to allocate them by sector. Given that consumer online purchases are heavily concentrated on clothing and electronics, and given that the most-favoured nation (MFN) tariffs on consumer electronics are low, we allocate 80 percent of these savings to textiles and clothing and the remainder to electronic equipment.

For Mexico, we estimate tariff savings on the basis of a ratio to tariff savings in Canada. The following data are used to approximate the ratio:

- Mexican retail online sales are about one-fifth of the level in Canada;
- The liberalization in Mexico is about 30 percent the liberalization in Canada;
- The boost from VAT exemption increase does not apply to Mexico, only time and frictional cost savings do; accordingly, we model the boost from this source as being about half the size of Canada's;
- Tariff levels for clothing and electronics are similar in Canada and Mexico.

On this basis we calculate that Mexico's tariff savings will be about 4.7 percent of the level in Canada.

While the raising of the threshold by Canada and Mexico is trade-liberalizing, there will likely be mixed impacts:

- While consumers benefit from this trade liberalising measure, there will be some negative impacts on Canadian retailers who lose market share to e-commerce platforms like Amazon. These negative impacts will show up in the estimates of the impact on domestic value-added for the goods sectors affected – mainly textiles, clothing and leather, and electronic equipment – and in domestic sales of the "trade" sector.
- As commerce increasingly shifts to online forms, the issue of tax neutrality between retail stores and cross-border online purchases will become more prominent. The CUSMA, however, goes in the other direction and deepens the non-

Table B1: De Minimis Changes in the CUSMA

Thresholds for imposition of customs duties and taxes, and application of import procedures		
	Customs Duty Threshold	**Sales Tax/VAT Threshold**
United States	US$800	US$800
Mexico	US$117 (NAFTA US$50)	US$50
Canada	C$150 (NAFTA: C$20)	C$40 (NAFTA: C$20)

Source: CUSMA Article 7.8.

neutral taxation of consumer goods purchased through e-commerce platforms from abroad. Generally, Canadian merchants registered for the GST/HST must charge and collect the GST/HST on all taxable goods sold for delivery in Canada. However, under the CUSMA, goods imported from the United States are not subject to the GST/HST for values under C$40. Thus, where tariffs create a tax-driven and hence welfare-reducing discrimination against imports, the CUSMA deepens a tax-driven and hence welfare-reducing discrimination against domestically purchased products.

- The CUSMA also allows a Party to reduce its thresholds to match that of another Party. Accordingly, the US de minimis could fall to the Canadian and Mexican levels, which would reduce market access compared to NAFTA. Even if this were to happen, it is likely to have a minimal impact on US imports. We make no allowance for this.

2. Trade Facilitation

The CUSMA updates the NAFTA measures addressing customs procedures and cooperation to be consistent with modern practice, as reflected in the WTO TFA and the TPP, including expedited express shipments. We evaluate the impact of the CUSMA measures on Canada's, Mexico's, and the United States' scores on the OECD TFI as a way to quantify the degree of improvement of the border regime. This improvement is considered not against the original NAFTA, but against the countries' scores, taking into account their commitments under the more modern WTO TFA, since these improve upon NAFTA and thus set a higher base level. We identify two measures for Canada, four for Mexico, and one for the United States on which the CUSMA implies a change in the respective country's TFI score.

To translate these improvements into actual cost reductions, these changes in the TFI index must be related to actual trade costs. Total non-tariff trade costs across the US-Canada and US-Mexico borders have been estimated at 29.49 percent and 29.13 percent of the value of goods, respectively, according to the ESCAP-World Bank Trade Cost Database.[14] However, not all of these costs are related to the measures addressed by trade facilitation, since they include language differences, distance, etc. Anderson and Van Wincoop (2004) find that the ad valorem equivalent of border-related trade barriers is about 44 percent, of which 6 percent is accounted for by information costs, 3 percent by security-related costs, and 8 percent by trade policies. Other barriers arising from such factors as language and currency differences account

14 https://www.unescap.org/resources/escap-world-bank-trade-cost-database.

Table B2: Impact of de Minimis Changes on Tariff Savings on Retail Imports in Canada, US$Millions

	2018	2019	2020	2021	2022	2023	2024	2025
Canada								
GDP	1,744,963	1,814,507	1,889,542	1,966,524	2,050,330	2,135,019	2,223,330	2,315,366
Retail Sales	462,926	481,376	501,282	521,705	543,938	566,405	589,834	614,250
E-commerce Retail Sales	37,497	43,324	50,128	57,388	65,273	73,633	82,577	92,137
Share of Retail Sales	8.10%	9%	10%	11%	12%	13%	14%	15%
Tariff Savings	125	144	167	191	218	245	275	307
Mexico								
E-commerce Retail Sales	6	7	8	9	10	12	13	15
Ratio to Cdn Tariff Savings	4.72%	4.72%	4.72%	4.72%	4.72%	4.72%	4.72%	4.72%

Sources: Authors' calculations based on estimates of e-commerce retail sales from Statista; all figures in US$ at 2014 prices, consistent with the base year for the model.

for the remainder of the 44 percent. Using this decomposition, trade facilitation measures would have traction on about 9 percent of the total 36 percent of non-trade policy border costs, or 25 percent of that total. Applying this ratio to the estimates of NAFTA border costs of just under 30 percent puts facilitation-related border costs at 7.5 percent. For modelling purposes, we assume facilitation-treatable border costs are about 10 percent. Given the impact of the CUSMA, we derive reductions in trade costs into Canada of 0.2 percent, into Mexico of 0.21 percent, and into the United States of 0.14 percent from this source.[15]

At the same time, the CUSMA's Customs chapter establishes new mechanisms on anti-circumvention and duty evasion, which promise to thicken the border. The intensification of border measures in the United States in the post-9/11 era raised the ad valorem tariff equivalent of the additional cost of shipping goods across the Canada-US border from 0.33 percent during the 1994 to 2000 period to 0.62 percent between 2005 and 2009 (Brown 2015) or by about 0.29 percent. We apply a similar increase in border transit costs into the United States. We assume that this effect is partly asymmetrical, with trade moving out of the United States also affected due to some degree of harmonization of procedures on the Canadian and Mexican side of the border, but only to half the extent that trade moving into the United States is affected. Border thickening more than offsets the 0.14 percent cost reduction from the positive CUSMA measures for the United States and results in a net increase of 0.2 percent for trade costs

15 Note: these cost reductions are treated as improvements in technology that lower the cost of shipping goods across borders (augmenting technological change or AMS shocks in the CGE modelling jargon).

Table B3: Trade Facilitation Indicator-based Improvements

TFI Category	Description	Canada		Mexico		USA	
		Pre	Post	Pre	Post	Pre	Post
OECD-A	Publication of necessary information on advance rulings.	0.095	0.095	0.000	0.095	0.095	0.095
OECD-C	Maximum time by which the advance ruling will be issued.	0.000	0.182	0.000	0.182	0.000	0.182
OECD-H	Other border controls supported by a risk management system.	0.057	0.057	0.000	0.057	0.057	0.057
OECD-I	Authorized Operators programs.	0.000	0.182	0.000	0.091	0.182	0.182

Sources: OECD Trade Facilitation Indicators; authors' calculations.

into the United States; for Canada and Mexico, it reduces the trade facilitation gain by 0.165 percent to a net of 0.013 percent for Canada and 0.03 percent for Mexico.

- It adds new provisions for transparency in import licensing and export licensing procedures;
- It expands the provisions governing import and export restrictions to include, inter alia, prohibition of (a) requirements to use local distributors for importation, (b) restrictions on the importation of commercial goods that contain cryptograph, (c) import restrictions on remanufactured goods (prohibitions on used goods continue to be allowed), and (d) requirements concerning consular transactions and associated fees and charges; and
- It updates provisions for temporary admission of goods to cover shipping containers, etc.

These measures would not likely materially impact the level of trade in goods.

3. ROOs: Autos

The most significant goods market trade innovation concerned ROOs for autos, where the CUSMA does the following:

- It increases overall RVC from 62.5 percent (60 percent for heavy trucks) under NAFTA to 75 percent (70 percent for heavy trucks);
- It introduces new distinctions between "core" parts, "principal" parts, and "complementary" parts, with varying content requirements: 75-70-65 percent on a net cost basis[16] respectively for passenger vehicles and light truck parts and 70-65-60 percent respectively for heavy truck parts;
- It introduces a new requirement for passenger vehicles and light trucks (but not heavy trucks) that specified "core" parts, including engines, advanced batteries for electric or hybrid vehicles, transmissions, and suspension and steering systems, must be originating in order for the whole vehicle to qualify as originating;
- It introduces a new requirement that 70 percent

16 Net cost is one of the alternative ways of calculating RVC; the other is transaction value. For details see Johnson (2019, 5).

Table B4: Trade Cost Impacts due to CUSMA Trade Facilitation/Border Thickening, Percent

	Before	After	Change	Total TFI-related Border Costs	TFI-related border costs Pre-CUSMA	TFI-related border costs Post-CUSMA	Trade Cost Reduction	Border Thickening	Net Trade Cost Impact
Canada	17.86	18.25	2.20	10	1.88	1.71	-0.18	0.165	-0.013
Mexico	15.86	16.29	2.68	10	2.79	2.60	-0.19	0.165	-0.028
USA	18.11	18.38	1.51	10	1.77	1.65	-0.12	0.330	0.206

Sources: OECD Trade Facilitation Indicators; authors' calculations.

of the steel and aluminum come from North American sources; and

- It introduces new rules based on LVC, requiring that 40 percent of the LVC of passenger vehicles and 45 percent of the LVC of trucks be made in facilities in which workers earn at least US$16 an hour.

The CUSMA provides a five-year transition period for passenger vehicles and light trucks and a seven-year period for heavy trucks during which up to 10 percent of a producer's shipments qualify for preferences without meeting these new requirements; however, certain content requirements, including those pertaining to steel and aluminum, must be met from the start.

Below, we develop specific assumptions for the impact of each of the changes.

LVC

The LVC rule is met by US and Canadian production: average wages in automobile assembly and parts production are above US$20/hour in both Canada and the United States (Dziczek et al. 2018). We assume this rule has no impact on either Canadian or US sourcing for NAFTA trade or for production intended for domestic sales.

For Mexico, average wages are well below the CUSMA threshold: US$7.34/hour in auto assembly and US$3.41/hour in parts (these are based on 2017 data; Dziczek et al. 2018). The Centre for Automotive Research (Dziczek et al. 2018) concludes that:

> Average wages in the Mexican automotive and parts industries fall so far short of the North American average that paying the MFN rate for Mexican exports will be the preferred strategy for nearly all manufacturers of vehicles that are not classified as trucks. Once manufacturers have to pay the MFN tariff, the work could move even further offshore with an even lower chance of there being any U.S. content in the resulting product.

Mexico's Trade Minister Ildefonso Guajardo acknowledged Mexico would not be able to meet the LVC requirements for all of its production and anticipated that some 30 percent of US auto imports from Mexico would pay the 2.5 percent passenger vehicle tariff. We assume that Mexican production of light trucks, which attracts a 25 percent tariff will migrate to the United States or Canada, while passenger vehicle assembly will migrate to make optimal use of existing facilities and take advantage of Mexico's low wages. Accordingly, we apply a tariff of 0.8 percent to US imports from Mexico.

RVC

The higher RVC required under the CUSMA ROOs imply some sourcing currently obtained from abroad must shift to North America. The

overall incremental additional value added is 12.5 percent. Taking into account each country's share of auto parts imports from third parties and share of production exported within North American, we arrive at rough estimates that this amounts to about 5 percent of the value of automotive exports from Mexico to the United States, about 6 percent for Canada to the United States, and about 3.5 percent for US exports to Canada and Mexico. We apply an NTB to third party automotive sector imports to drive trade diversion equal to these percentages for the CUSMA parties.

Administrative/Sourcing Costs from Greater Complexity of the Automotive ROOs

The multiple criteria to satisfy originating status increase the complexity of administering the ROOs. Moreover, although producers will have some flexibility to meet the North American content requirements by averaging qualifying inputs across models, inevitably the multiple binding constraints are likely to force sub-optimal sourcing of inputs. We assume a 1 percent cost increase for producers for traded production. This implies a 0.8 percent production cost increase for automotive production in Canada and Mexico and a 0.3 percent increase for the United States, based on the share of production exported within North America.

Quota-Based Exemption from National Security Tariffs

The CUSMA side letters provide a TRQ for Canada and Mexico if the United States imposes Section 232 national security tariffs on automotive products. We assume the TRQ is not binding and do introduce a trade restriction on this account. The negative impacts of this and other features of the CUSMA that dissuade investment into Canada and Mexico to serve the North American market are not incorporated in the simulations; their effect on investment into Canada represents a caveat to the analysis.

4. ROOs: Textiles and Apparel

The CUSMA introduces some tweaks to the "yarn forward" provisions in the NAFTA ROOs for textiles and apparel. The new provisions require that some additional inputs, including sewing thread, pocketing fabric, narrow elastic bands, and coated fabric be made in the region for the finished product to qualify as originating. In addition, the CUSMA introduces detailed provisions for textile-specific verification of originating status. Given the minor value content of these components in finished products, this tweak would dictate North American sourcing to avoid tariffs on the entire value of the finished product; accordingly, this would constitute a prohibitive NTB to third-party imports of these products for apparel manufactured for the North American market.

There appears to be some modest scope for additional trade diversion towards North American sourcing in these products. For example, for sewing thread alone, 0.6 percent of Canada's total imports of textiles come from outside NAFTA (although some of this would be for final consumption in Canada). We make a simple assumption that 0.5 percent of textile imports will be diverted by this measure. We model this by implementing a scaled NTB on Canadian and Mexican imports of textiles from third parties designed to achieve the 0.5 percent trade diversion. We observe that this will create opportunities for increased prices and will thus be welfare reducing.

5. ROOs: Production Inputs

ROOs have also been made more restrictive for industrial inputs, including chemicals, steel-intensive products, glass, and optical fibre. As a stylized fact, Canadian exports of industrial goods to the NAFTA region correspond to about 17 percent of Canada's GDP; for Mexico, the comparable figure is about 27 percent; for the United States it is about 2.5 percent. Accordingly, restrictions on sourcing of production inputs have

a much larger effect in terms of sourcing decisions on producers in Mexico and Canada than on US producers. That being said, for ferrous metals and chemicals, there is little in the way of imports from third parties to divert towards US sources. Canada and Mexico each source only about US$23 million annually in these products from overseas. We apply an NTB to third-party chemical and ferrous metal imports to drive a 10 percent reduction in these imports from third parties for Canada and Mexico. We assume this has no impact on US imports from third parties.

6. ROOs: Compliance Costs

The higher administrative costs of monitoring compliance and reporting of the tighter ROOs on production inputs likely has a greater effect on costs. ROOs compliance costs overall are generally estimated to be ad valorem equivalents on the order of 2 to 7 percent. Labelling costs run on the order of 1 percent. As increasing North American content is the single most important policy objective of the CUSMA, it seems fair to assume that vigilance will be high, requiring companies to invest in the record-keeping and input-tracing to ensure they are not caught offside and are charged duties (which could be applied retroactively in the case of post-entry audits). We assume this amounts to about a 1 percent cost of traded production. This translates into a 0.27 percent cost for Mexican industrial production, a 0.17 percent cost for Canadian production, and a 0.025 percent cost for US industrial production.

7. Goods Market Regulation

As regards goods market regulations, the CUSMA includes a number of provisions.

Chapter 12 promotes regulatory alignment for several manufacturing sectors, including information and communication technology, pharmaceuticals and medical devices, cosmetic products, and chemical substances.

- For information and technology products, the CUSMA prohibits restrictions on imports of products for commercial applications containing encryption or requiring disclosure of the encryption keys, etc.; promotes electromagnetic compatibility; provides for mutual recognition for conformity assessments; and addresses regulations related to terminal equipment.
- For pharmaceuticals and medical devices, the CUSMA promotes alignment of technical regulations, standards, conformity assessment procedures, marketing authorization, and notification procedures.
- For cosmetic products, the CUSMA requires risk-based methods in developing regulations related to safety and health concerns, prohibits retesting solely for different shades or fragrancy variants of a product, and promotes alignment of labelling practices and requirements for tamper-evident packaging in the United States and security packaging in Canada.
- For chemicals, the CUSMA promotes a risk-based approach to the assessment of chemicals for hazards to health or the environment and promotes alignment of risk assessment methodologies and risk management measures.

It is not clear whether there are actual irritants in North American trade that are being addressed by these measures, since the cosmetics double-testing, for example, is carried over from the TPP, in which context it appeared to be aimed principally at Chile and Peru, which were afforded five years to comply. Accordingly, we find no basis for establishing a potential trade impact. Further, the specific issues addressed appear to have a very narrow incidence in terms of product coverage, so any trade impact would also be very narrow.

Finally, it is to be noted that the thrust of the measures is to align with the US risk-based approach to product safety regulation, as opposed to the EU's approach that incorporates the precautionary principle, and so is globally not trade-promoting, but rather creates grounds for future frictions and market distortions. For example, the difference between US and EU regulations concerning pig feed additives results in a sharp bifurcation of markets for producers who align with US standards and those who align with EU standards.

Table B5: Canada's Dairy Market Access Commitments, MT and US$ '000s at 2014 Prices

Product	Quota (MT)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cheese (MT)	12,500	2,083	4,167	6,250	8,333	10,417	12,500
Value of Quota (US$)		15,467	30,934	46,401	61,868	77,335	92,802
Fluid Milk (MT)	50,000	8,333	16,667	25,000	33,333	41,667	50,000
Value of Quota (US$)		5,059	10,118	15,176	20,235	25,294	30,353
Cream	10500	1,750	3,500	5,250	7,000	8,750	10,500
Value of Quota		4,457	8,914	13,370	17,827	22,284	26,741
Skim Milk Powder	7,500	1,250	2,500	3,750	5,000	6,250	7,500
Value of Quota (US$)		2,485	4,970	7,455	9,940	12,425	14,910
Butter and Cream Powder	4,500	865	1,730	2,595	3,460	4,325	5,190
Value of Quota		3,433	6,866	10,298	13,731	17,164	20,597
Concentrated and Condensed Milk	1,380	230	460	690	920	1,150	1,380
Value of Quota (US$)		206	412	618	824	1,030	1,237
Yogurt and Buttermilk	4,135	689	1,378	2,068	2,757	3,446	4,135
Value of Quota		2,641	5,282	7,923	10,564	13,205	15,846
Powdered Buttermilk	520	87	173	260	347	433	520
Value of Quota (US$)		264	527	791	1,054	1,318	1,582
Products of Natural Milk Constituents	2,760	460	920	1,380	1,840	2,300	2,760
Value of Quota (US$)		1,843	3,686	5,529	7,372	9,215	11,058
Ice Cream and Ice Cream Mixes	690	115	230	345	460	575	690
Value of Quota (US$)		366	732	1,098	1,464	1,830	2,197
Other Dairy	690	115	230	345	460	575	690
Value of Quota (US$)		267	534	800	1,067	1,334	1,601
Whey	4,134	689	1,378	2,067	2,756	3,445	4,134
Value of Quota (US$)		1,229	2,457	3,686	4,914	6,143	7,371
Total Value of Quota		**37,715**	**75,431**	**113,146**	**150,862**	**188,577**	**226,293**

Source: Authors' calculations.

Table B6: Canada's Poultry Market Access Commitments, MT and US$ '000s at 2014 Prices

Product	Quota Commitment (MT)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Chicken	57,000	47,000	49,000	51,000	53,000	55,000	57,000
Value of Quota (US$)		127,684	133,117	138,550	143,984	149,417	154,851
Turkey	5,000	1,000	1,000	1,000	1,000	1,000	1,000
Value of Quota (US$)		4,797	4,797	4,797	4,797	4,797	4,797
Eggs and Egg Products (units)	10,000,000	1,666,667	3,333,333	5,000,000	6,666,667	8,333,333	10,000,000
Value of Quota (US$)		6,074	12,148	18,222	24,296	30,370	36,444
Total Value of Quota		**138,554**	**150,062**	**161,569**	**173,076**	**184,584**	**196,091**

Source: Authors' calculations.

Chapter 28 provides for good regulatory practices in general; this addresses similar commitments already made by the parties under the OECD and Asia-Pacific Economic Cooperation (APEC) codes and thus will not likely impact materially on goods market regulation.

8. Agricultural Products Market Access

The NAFTA update has only limited general treatment of agricultural trade and bifurcates into separate annexes for Canada-US trade and US-Mexico trade. As regards the general elements, the measures dealing with biotechnology products establish a non-onerous regime for dealing with Low Level Presence (LLP) Occurrence of unauthorized DNA. This implies some easing of NTBs, but the quantitative implications for intra-North American trade cannot be readily assessed.

As regards dairy, we calculate the average unit value of Canada's imports for the various quota categories over the period 2015-2017, converted to US dollar values expressed in 2014 US dollars for compatibility with the underlying GTAP v10 database, and calculate the straight-line increase in quota value over the first six years of the implementation period. This results in additional dairy imports by year six of about US$227 million (Table B5). This is about two-thirds of Canada's dairy imports from the United States in recent years.

Canada also committed to supply management reforms by eliminating class 7 milk, which was created to allow Canadian dairy suppliers to supply downstream Canadian cheese and processed food manufacturers at lower prices to compete with diafiltered milk ingredients. The latter are non-fat milk solids filtered to achieve a high protein concentration and trade not as dairy products, but mainly under HS 3504 (milk protein isolates), as well as HS 2106 (protein concentrates) and HS 3502 (albumins). These tariffs lines were not constrained by supply management. The impact of Canada's measures to offset the imports of diafiltered milk reduced imports from the United States of HS 3504 by about US$50 million. We assume that this will be added back into US chemical exports to Canada due to the changes in supply management administration.

The CUSMA offers Canada reciprocal market access in dairy, but also slaps tariffs on any Canadian exports above Canada's global WTO limits for subsidized agricultural products. In addition, the agreement establishes a price floor

for Canadian exports to the United States of skim milk solids used to produce non-fat dry milk, milk protein concentrates, and infant formula; this floor will be set by the US price for non-fat dry milk. Further, Canada agreed to cap its exports of skim milk powder and milk protein concentrates, which had increased in volume from around 17,000 tons to about 73,000 tons. Under the agreement, the aggregate export cap will be 55,000 Metric Tonnes (MT) in the first year, falling to 35,000 MT in the second year and thereafter. Exports that exceed this threshold will face an export surcharge of C$0.54 per kilogram, which is about a 30 percent export tax. We reduce Canada's dairy exports to the "rest of the world" by US$35 million in 2020 and by US$70 million in each year after, based on the unit value of the product group in 2017.

Infant formula exports also come under a new export cap. This will be 13,333 MT in the first year, increasing to 40,000 MT in the second year. The increase appears to accommodate the Feihe dairy processing plant being constructed in Kingston, Ontario to produce infant formula for export to China. We make no adjustment for this as the expansion would be implicitly in the baseline. Both caps will be increased by 1.2 percent a year as a normal growth increment, thereafter. This is beyond the projection horizon for the study.

We follow the same procedure to calculate the value of the TRQ commitments for poultry and eggs. This results in an increase over six years to almost US$200 million in additional poultry and egg imports (Table B6)

Finally, the CUSMA requires changes to Canada's wheat grading system. Both Canada and the United States are major exporters of wheat to the rest of the world and bilateral trade is relatively small as a share of total exports to the world for both. Insofar as the changes reduce quality standards (an allegation of Canada's wheat farmers), it is negative; insofar as it removes an NTB to US exports to Canada, the CUSMA represents a minor point of liberalization. We were unable to put a value on this element of the CUSMA.

9. Services

We develop the shock for the CUSMA based on changes to the OECD STRI, taking into account both changes to applied measures and in bindings. The changes are evaluated compared to the levels of market access provided under the NAFTA. The difference between applied and bound market access is "water" – that is liberalization that can be withdrawn without penalty under the NAFTA. "Water" is a proxy for uncertainty, as it measures the extent to which a country's restrictiveness could increase. Observed restrictiveness of services market access reflects both the level of applied market access and uncertainty. Following Ciuriak et al. (forthcoming),[17] we construct a composite services NTB index, which is equal to the STRI score plus 0.4 times the value of "water." The percentage change in this composite NTB due to the action of CUSMA provides the liberalization quotient for CUSMA.

We convert the percentage change in the NTB into a trade cost impact by first aggregating the 24-sector breakdown of services into 9 GTAP study sectors; this is done on the basis of simple averages. We then apply the percentage changes in the NTBs at the GTAP study sector level to estimates of sectoral trade costs in ad valorem equivalent (AVE) terms.

We obtain AVEs for GTAP services sectors from Fontagné et al. (2016). We assume that only 25 percent of measured AVEs correspond to barriers to services trade in the OECD's STRI

17 For previous studies, we have relied on the estimate of the coefficient on uncertainty from Ciuriak and Lysenko (2016) of 0.5. This study has been accepted for publication by the World Trade Review on the basis of revised estimates, which place this parameter at 0.4. For this and future studies, we will be using this latter value.

Table B7: Services Commitments under the CUSMA, Applied and Bound

	NTB Before	NTB After	Change (*percent*)	NTB AVEs	Trade Cost Impact CUSMA (*percent*)
Canada					
Construction	0.103	0.103	0.000	21.1	0.00
Trade	0.079	0.079	0.000	15.1	0.00
Transport Nec	0.096	0.096	0.000	10.3	0.00
Water Transport	0.119	0.122	0.030	16.5	0.50
Air Transport	0.232	0.232	0.000	25.9	0.00
Communications	0.100	0.105	0.057	17.0	0.97
Financial Services	0.093	0.082	-0.113	18.5	-2.09
Insurance	0.077	0.077	0.000	15.2	0.00
Business Services	0.088	0.101	0.144	16.4	2.36
Trade-weighted					0.86
United States					
Construction	0.144	0.144	0.000	21.1	0.00
Trade	0.070	0.070	0.000	17.6	0.00
Transport Nec	0.178	0.176	-0.013	7.6	-0.10
Water Transport	0.128	0.132	0.028	30.5	0.85
Air Transport	0.254	0.254	0.000	22.8	0.00
Communications	0.079	0.078	-0.016	14.6	-0.24
Financial Services	0.106	0.096	-0.099	16.1	-1.59
Insurance	0.086	0.086	0.000	10.2	0.00
Business Services	0.110	0.116	0.054	11.7	0.63
Trade-weighted					0.06
Mexico					
Construction	0.148	0.148	0.000	39.2	0.00
Trade	0.076	0.076	0.000	19.1	0.00
Transport Nec	0.191	0.191	0.000	13.4	0.00
Water Transport	0.108	0.108	0.000	40.4	0.00
Air Transport	0.254	0.254	0.000	40.6	0.00
Communications	0.107	0.103	-0.042	30.3	-1.26
Financial Services	0.152	0.141	-0.069	35.7	-2.47
Insurance	0.083	0.083	0.000	6.6	0.00
Business Services	0.160	0.153	-0.046	38.9	-1.78
Trade-weighted					-1.83

Source: OECD STRI and calculations by the authors.

Table B8: Investment Commitments Under the CUSMA, Applied and Bound

	NTB Before	NTB After	Restrictiveness CUSMA (*percent change*)
Canada			
Construction	0.106	0.121	13.69
Trade	0.160	0.173	8.06
Transport Nec	0.084	0.089	6.26
Water Transport	0.218	0.360	64.95
Air Transport	0.413	0.413	0.00
Communication	0.220	0.253	14.61
Financial Services Nec	0.0586	0.0594	1.37
Insurance	0.090	0.095	5.18
Business Services Nec	0.088	0.119	35.42
United States			
Construction	0.071	0.078	10.27
Trade	0.078	0.085	8.78
Transport Nec	0.250	0.206	-17.41
Water Transport	0.291	0.427	46.86
Air Transport	0.375	0.375	0.00
Communication	0.154	0.152	-1.19
Financial Services Nec	0.169	0.170	0.47
Insurance	0.155	0.159	3.01
Business Services Nec	0.057	0.062	8.20
Mexico			
Construction	0.107	0.107	0.00
Trade	0.097	0.097	0.00
Transport Nec	0.282	0.281	-0.41
Water Transport	0.279	0.279	0.00
Air Transport	0.375	0.375	0.00
Communication	0.243	0.220	-9.42
Financial Services Nec	0.198	0.199	0.40
Insurance	0.148	0.153	3.15
Business Services Nec	0.141	0.126	-10.10

Note: A negative impact on the NTB denotes a reduction in investment barriers and liberalization; a positive impact means an increase in NTBs.

Sources: OECD STRI, GTRI and FDIR, indexes and authors' calculations..

framework and thus amenable to change under the CUSMA.[18] This assumption is consistent with the general conclusion obtained from the ECORYS (2009) survey of NTBs to goods and services that 50 percent could in principle be removed – i.e., that they were "actionable" – and the CEPR (2013) assessment that an ambitious FTA could reduce barriers by 50 percent of actionable measures (i.e., by 25 percent of the total observed measures).

Table B7 sets out the scores respectively for Canada, Mexico, and the United States, aggregated to the GTAP sectors.

As can be seen, overall, the CUSMA does not liberalize services for Canada or the United States. Indeed, it results in a marginal increase in restrictiveness, notwithstanding some liberalization of financial services, mainly due to the fact that it reduces the value of the parties' commitments through a clause that allows the parties to revert to their WTO GATS regime, without penalty. This in effect removes the binding effect of some of the commitments made under the NAFTA, which did not include this clause. Mexico, however, does improve on its NAFTA services liberalization commitments, with improved market access in business services, financial services, and communications.

10. Investment

We develop the shock for the CUSMA investment measures based on changes to the OECD FDIR index, taking into account both changes to applied measures and the effect of changes in bindings for services sector Mode 3 market access (i.e., market access via a commercial presence). The changes are evaluated compared to the levels of market access provided under the NAFTA. The percentage changes in the index are applied to the phantom tax in the GTAP-FDI model framework. Table B8 sets out the implications of the CUSMA for investment.

As with services, the main impacts are on the removal of bound commitments under the NAFTA through the escape clause that allows parties to revert to their GATS commitments without penalty.

The larger impact of the CUSMA on investment, however, could come from an increase in uncertainty for investment in Canada and Mexico aimed at serving the US market. Factors affecting the investment climate in Canada include the following: the "America First" stance by the Trump administration, including the "weaponization" of uncertainty through the threat of tariffs on US firms that invest abroad to serve the US market (which the CUSMA does not attenuate since it does not prohibit the use of Section 232 against Canada and Mexico); the sunset provisions; the elimination of ISDS between the United States and Canada; the extremely grudging acceptance by the United States of the retention of the binational panel review of trade remedy decisions, which likely weakens its value in the eyes of investors; the resistance to fixing the dysfunctional NAFTA state-to-state dispute settlement mechanism; and the caps on exports on autos in the Section 232 side letter, which warn that significant gains in exports to the US market might meet with pushback.

The exodus of foreign investment out of the United Kingdom since the Brexit referendum suggests that the impact of heightened uncertainty can impact existing investments – notwithstanding sunk costs – and not only future investments. However, a Brexit-like pronounced slowdown in inflows into, or a general exodus of foreign

18 An example of a services trade barrier that is routinely addressed in trade agreements is the requirement to have an office in a country in which the service provider does business. This measure appears in the STRI listing of barriers. An example of a non-actionable barrier is regulatory heterogeneity – differences in regulatory frameworks that raise costs of cross-border business, but are not captured by the STRI or addressed in trade agreements.

Table B9: Increased Spending on Biologics, US$Millions at 2014 Prices

	2020	2021	2022	2023	2024	2025
Canada	200	212	225	238	252	268
Mexico	50	53	56.25	59.5	63	67

Source: Authors' calculations based on various source.

Table B10: Payments and Receipts for Copyright under Extended Copyright Protection, US$Millions at 2014 Prices

	2020	2021	2022	2023	2024	2025
Copyright Payment Outflows	30.0	31.6	33.3	35.1	37.0	38.9
Copyright Receipt Inflows	12.0	12.6	13.3	14.0	14.8	15.6

Source: Back of the envelope calculations by the authors based on various sources.

investment out of, Canada that could be attributed to the Trump administration uncertainty effect is not yet in evidence. Accordingly, a general chilling effect on investment into Canada and Mexico is not incorporated in the simulations. Nonetheless, this remains a caveat concerning the results, since the CUSMA incorporates measures that instrumentalize this uncertainty.

11. IP

The CUSMA IP chapter is modelled on the 2016 TPP, with some modifications in the direction of increasing the level of protection, principally by lengthening the term of protection, increasing the severity of penalties for infringement, and increasing border enforcement (Lipkus and Maddox 2018).

The CUSMA extends the term of data exclusivity for biologics from eight years (Canada's current level) to 10 years. The Australian Productivity Commission concluded that term extension provisions in Australian law cost the Australian Pharmaceutical Benefits Scheme about AUS$260 million annually of which about 70 percent would be additional payments for imports. Converted to a Canadian context, adjusting for exchange rate and size of the economy, we derive an estimate of US$200 million increased annual import bill.[19]

Biologics are the fastest growing drug segment so this figure will grow. At the same time, flanking measures for review of drug pricing (which in a sense is an endogenous response of governments to the pressure to extend protection) could ameliorate the impact on drug prices. Overall spending on

19 The measures on biologic drugs take effect only five years after the CUSMA enters into force, and thus beyond the time horizon over which we evaluate the economic impacts. We shift these impacts forward to illustrate the scale of the impacts, which will only be realized in 2030.

Table B11: CUSMA Impact on Digital Services, Applied and Bound

	Current Practice		CUSMA	
	Current	Bound	Current	Bound
Canada	0.123	0.660	0.123	0.408
Mexico	0.141	0.581	0.141	0.368
USA	0.123	0.620	0.123	0.368

Source: OECD STRI and authors' calculations.

drugs in Canada is rising at about 4 percent per year (as per estimates for 2018); assuming 50 percent faster growth in biologics, we grow the increased spending on imported biologics at 6 percent per annum. This yields the following additional rent payments to the United States, once these measures are implemented.

The CUSMA extends copyright protection to the life of the author plus 70 years, an increase from the 50 years that Canada currently provides. While various estimates from hundreds of millions to billions have been floated for the present value of the extension on the value of copyrighted works, there is little empirical evidence on the impact of term extension on annual flows of payments (Watt 2007). Rappaport (1998), in a Congressional Research Service study, examined the commercial value of books, music, and movies from the period 1922-1941, whose copyrights were to expire during 1998-2017 under the 50-year term limit then in force in the United States. This study generated estimates based on random sampling to determine what percentage of works were still commercially viable and attributing average values to them. It concluded that, in 2017 (valued at 1997 prices), annual royalties for works created in 1922-1941 and renewed in 1950-1954 would total on the order of US$330 million. The greatest value in 2017 would be from the youngest cohort of copyrightable works exhausting copyright terms: for books, movies, and musical works published between 1937 and 1941 and renewed in 1965-1969, the royalties were valued at US$202 million.

Over the period 2020-2025, the works with copyright expiring would be from the period 1970-1975. Leveraging the estimate of US$202 million, we convert that to US dollars at 2014 prices, which yields an estimate of US$273 million. Projecting that forward for works losing copyright in 2020-2025 on the basis of Rappoport's estimate of the increase for works with copyright expiring between 2008-2012 and 2013-2017, we expand that to about US$400. For Canada, a comparable figure would then be about 10 percent of that or about US$40 million. Given the dominance of foreign content, we make a round figure assumption of US$30 million in annual increased outflows in 2020. We further grow this at about 5 percent per annum (rising to US$38 million per year in 2025 or 35 percent greater than the 2020 figure).

We use the ratio of Canadian exports to imports of cultural products (about 40 percent) to generate an estimate of the royalties to Canada coming in from abroad (for practical reasons, we assign this entirely to the United States). The results are set out in Table B10.

Other IP changes include Chapter 29(b), which addresses "Transparency and Procedural Fairness for Pharmaceutical Products and Medical Devices." It introduces the Australia-US FTA language

concerning "the need to recognize the value of pharmaceutical products and medical devices through the operation of competitive markets or by adopting or maintaining procedures that appropriately value the objectively demonstrated therapeutic significance of a pharmaceutical product or medical device." It also provides for a review that affords firms the opportunity to obtain a reconsideration of a disputed ruling. Australian experience suggests that this works to raise pharmaceutical prices and health costs and thus to reduce consumer welfare. While this measure will likely increase rent outflows from Canada and Mexico to the United States, we are unable to assign an impact estimate, especially given that policy efforts will likely be made to offset any cost increase from this avenue.

The main other areas where the CUSMA introduced changes to which we do not attempt to assign quantitative impacts include the following:

- Restoration of patent term for Patent Office delays (new for Canada);
- New criminal and civil penalties for trade secret theft; and
- Intensified border measures to interdict counterfeit and pirated goods in transit in Canada.

12. Data and Digital Economy Measures

We draw on the recently released estimates of OECD's STRI for digital services to evaluate the CUSMA's impact on data flows in their capacity as the medium for delivery of services. As seen in Table B11, the CUSMA does not liberalize an already highly liberal environment for digital trade; however, it does substantially improve the binding of current applied practice. We do not attempt to construct a quantitative impact estimate of the liberalizing effect of these bindings, nor of the data measures, since an available empirical basis for establishing the cost reductions implied by these bindings was not available.

Appendix C: Detailed Sectoral Impacts

Tables C1-C3 provide the sectoral impacts on a fully disaggregated basis for the three parties.

Table C1: Canada – Sectoral Impacts (Bilateral Trade is with United States)

	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments)	Total Shipments	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments	Total Shipments
	(US$ millions)						(percent)					
Cereal Grains	-13	-3	21	-5	-28	-7	-0.59	-0.37	0.17	-0.41	-0.35	-0.03
Fruits and Vegetables	-8	-10	4	-11	0	4	-0.40	-0.15	0.06	-0.11	-0.01	0.04
Oilseeds and Vegetable Oil	-27	-9	14	-14	6	19	-0.38	-0.44	0.07	-0.46	0.06	0.07
Other Farming	-5	-9	14	-30	-47	-33	-0.11	-0.65	0.23	-0.75	-0.37	-0.17
Sugar	-1	-4	1	-11	-18	-17	-0.17	-0.95	0.19	-1.13	-0.34	-0.28
Dairy	5	252	-68	226	-703	-771	3.28	61.18	-15.49	28.21	-2.44	-2.64
Beef	7	-26	19	-44	-87	-68	0.37	-2.23	0.79	-2.24	-0.47	-0.33
Pork and Poultry	28	217	91	194	-322	-230	1.14	8.30	1.90	6.45	-2.74	-1.39
Food Products	1	-126	21	-189	-118	-97	0.01	-0.88	0.12	-0.87	-0.30	-0.17
Beverages and Tobacco	0	-20	0	-54	-74	-74	0.02	-0.73	0.03	-0.76	-0.44	-0.40
Forestry and Wood Products	-23	-159	120	-206	-84	36	-0.09	-1.02	0.28	-0.99	-0.09	0.03
Fishing	-3	-2	-2	-3	-3	-5	-0.24	-0.26	-0.07	-0.28	-0.16	-0.12
Fossil Fuels	-736	-270	-606	-487	238	-368	-0.68	-0.89	-0.50	-0.93	0.12	-0.12
Mineral Products	-3	-39	49	-62	-88	-39	-0.07	-0.44	0.22	-0.42	-0.15	-0.05
Textiles, Apparel, and Leather	3	2,174	15	408	-113	-98	0.12	42.37	0.42	1.24	-1.72	-0.96
Chemicals, Rubber, and Plastics	-992	1,997	-1,225	-1,659	2,896	1,671	-2.13	3.59	-1.82	-1.84	3.95	1.19
Ferrous Metals	-110	512	-70	-484	826	756	-1.07	4.44	-0.60	-2.42	4.07	2.37

Source: Authors' calculations.

Table C1: Continued

Non-ferrous Metals	-152	-36	-35	-67	42	7	-0.61	-0.37	-0.07	-0.24	0.24	0.01
Metal Products	-88	-15	-109	12	-176	-285	-1.23	-0.13	-1.21	0.06	-0.41	-0.55
Automotive	-1,121	3,567	-1,438	406	657	-781	-1.36	3.81	-1.62	0.34	1.84	-0.63
Transport Equipment	-226	-78	-246	-94	-71	-317	-1.47	-0.58	-0.93	-0.42	-0.45	-0.75
Electronic Equipment	-67	367	-37	-262	-64	-101	-0.83	1.33	-0.23	-0.34	-0.71	-0.41
Machinery	-303	-254	-335	-348	-160	-495	-1.22	-0.42	-0.90	-0.31	-0.37	-0.62
Other Manufacturing	-79	-101	-74	-233	-142	-215	-0.76	-0.75	-0.58	-0.74	-0.17	-0.22
Construction	0	0	5	-10	-2,597	-2,592	0.68	-1.13	0.74	-1.09	-0.59	-0.58
Trade	19	-55	59	-159	-3,055	-2,996	0.99	-1.58	0.89	-1.49	-0.60	-0.58
Transport	32	-80	110	-276	-432	-322	0.72	-1.26	0.61	-1.01	-0.30	-0.20
Communications	32	-133	55	-169	-374	-319	2.86	-9.74	1.34	-3.10	-0.34	-0.28
Financial Services	444	943	526	685	-2,956	-2,430	5.88	8.95	3.70	3.15	-1.08	-0.85
Business Services	-435	-1,186	-213	-1,431	-757	-970	-5.45	-22.81	-0.61	-4.19	-0.16	-0.19
Recreation	11	-80	70	-150	-364	-294	0.83	-1.26	0.81	-1.21	-0.52	-0.37
Other Services	36	-175	88	-232	-7,096	-7,008	1.11	-1.73	1.12	-1.71	-0.68	-0.67
Total	-3,774	7,160	-3,174	-4,760	-15,265	-18,439	-0.87	1.65	-0.47	-0.58	-0.39	-0.40

Source: Authors' calculations.

Table C2: Mexico – Sectoral Impacts (Bilateral trade is with United States)

	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments)	Total Shipments	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments	Total Shipments
	(US$ millions)						(percent)					
Cereal Grains	0	-39	9	-45	8	17	0.11	-0.75	0.97	-0.73	0.09	0.17
Fruits and Vegetables	5	-3	18	-5	-15	3	0.04	-0.19	0.14	-0.21	-0.30	0.02
Oilseeds and Vegetable Oil	0	-31	2	-44	-18	-15	0.09	-0.58	0.51	-0.55	-0.25	-0.20
Other Farming	11	-28	22	-50	-106	-84	0.74	-1.73	1.01	-1.81	-0.41	-0.30
Sugar	9	-16	18	-16	-66	-47	0.77	-1.61	1.05	-1.61	-0.53	-0.33
Dairy	4	-90	8	-108	-258	-250	2.72	-4.47	3.09	-4.43	-0.74	-0.71
Beef	21	-16	28	-15	-76	-48	1.67	-0.91	1.87	-0.71	-0.73	-0.40
Pork and Poultry	2	-126	20	-137	-35	-15	1.72	-2.93	2.71	-2.72	-0.24	-0.09
Food Products	62	-94	109	-163	-840	-731	0.94	-2.28	1.08	-2.27	-0.81	-0.65
Beverages and Tobacco	15	-15	22	-29	-289	-267	0.30	-1.34	0.33	-1.33	-0.89	-0.68
Forestry and Wood Products	26	-160	55	-243	-78	-23	0.95	-1.82	1.21	-1.79	-0.18	-0.05
Fishing	1	0	4	-1	-33	-29	0.76	-1.93	0.95	-2.03	-1.19	-0.92
Fossil Fuels	-330	-479	-124	-588	73	-51	-0.50	-1.20	-0.15	-1.24	0.05	-0.02
Mineral Products	30	-107	134	-162	-767	-633	0.72	-1.42	0.92	-1.42	-1.15	-0.78
Textiles, Apparel, and Leather	45	43	63	-285	156	219	0.55	0.65	0.60	-1.35	0.44	0.47
Chemicals, Rubber, and Plastics	-196	2,125	-261	-1,869	3,005	2,744	-1.46	3.88	-0.84	-2.00	2.98	2.08
Ferrous Metals	-108	497	-145	-924	1,546	1,401	-2.26	6.09	-1.75	-4.63	3.98	2.98
Non-ferrous Metals	37	-90	108	-140	12	121	0.34	-1.04	0.69	-1.00	0.07	0.35
Metal Products	-79	-84	-86	-135	-200	-286	-1.15	-0.70	-0.92	-0.56	-0.96	-0.94
Automotive	-4,198	3,186	-5,066	-1,726	3,727	-1,338	-3.91	7.41	-3.44	-2.29	5.22	-0.61
Transport Equipment	-23	-62	-11	-132	-97	-109	-0.53	-1.17	-0.19	-1.00	-0.70	-0.55
Electronic Equipment	-506	-193	-424	-1,031	-69	-493	-0.77	-0.89	-0.45	-0.82	-0.35	-0.43

Source: Authors' calculations.

Table C2: Continued

Machinery	-619	-792	-566	-1,706	-218	-784	-0.86	-1.29	-0.60	-1.19	-0.87	-0.66
Other Manufacturing	-113	-100	-98	-200	-124	-221	-0.77	-1.20	-0.44	-1.16	-0.20	-0.26
Construction	0	0	20	-8	-5,437	-5,418	1.67	-3.74	1.72	-3.65	-2.02	-2.01
Trade	11	-35	24	-101	-4,861	-4,837	2.16	-3.35	2.07	-3.25	-1.29	-1.28
Transport	103	-60	176	-206	-2,320	-2,144	2.46	-2.60	2.06	-2.54	-1.14	-1.01
Communications	8	16	15	-1	-907	-892	4.07	8.14	2.27	-0.18	-1.30	-1.27
Financial Services	112	88	196	-10	-1,164	-968	12.51	4.59	4.27	-0.21	-1.36	-1.07
Business Services	-20	15	9	-58	-2,469	-2,461	-3.65	14.69	0.44	-2.30	-1.11	-1.10
Recreation	24	-47	59	-76	-2,392	-2,333	2.13	-2.30	2.09	-2.25	-1.40	-1.35
Other Services	11	-153	24	-208	-7,612	-7,589	2.66	-3.88	2.66	-3.86	-1.43	-1.42
Total	-5,653	3,150	-5,640	-10,422	-21,923	-27,563	-1.36	0.97	-0.94	-1.51	-0.77	-0.80

Source: Authors' calculations.

Table C3: United States – Sectoral Impacts (Bilateral Trade is with Canada and Mexico combined)

	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments)	Total Shipments	Bilateral Exports	Bilateral Imports	Total Exports	Total Imports	Domestic Shipments	Total Shipments
	(US$ millions)						(percent)					
Cereal Grains	-41	-13	-31	-14	-22	-53	-0.70	-0.57	-0.10	-0.32	-0.03	-0.04
Fruits and Vegetables	-13	-2	-6	-14	-14	-20	-0.18	-0.01	-0.03	-0.06	-0.04	-0.03
Oilseeds and Vegetable Oil	-40	-27	-44	-20	5	-39	-0.54	-0.44	-0.08	-0.14	0.01	-0.04
Other Farming	-36	7	-26	-11	-71	-97	-1.26	0.12	-0.14	-0.05	-0.04	-0.05
Sugar	-19	9	-18	5	-41	-59	-1.52	0.55	-0.62	0.14	-0.15	-0.19
Dairy	160	9	144	16	34	178	6.75	3.17	1.48	0.63	0.02	0.09
Beef	-42	28	-47	32	-54	-101	-1.44	0.98	-0.51	0.33	-0.03	-0.06
Pork and Poultry	90	30	70	31	-49	21	1.31	1.37	0.44	0.78	-0.04	0.01
Food Products	-216	65	-227	74	-186	-413	-1.22	0.33	-0.50	0.11	-0.04	-0.08
Beverages and Tobacco	-32	17	-33	15	-57	-90	-0.96	0.26	-0.24	0.05	-0.03	-0.04
Forestry and Wood Products	-312	4	-359	55	-283	-641	-1.32	0.02	-0.52	0.09	-0.02	-0.05
Fishing	-2	-2	-1	-5	-5	-6	-0.28	-0.12	-0.05	-0.15	-0.07	-0.06
Fossil Fuels	-714	-1,113	-781	-550	523	-258	-1.09	-0.60	-0.36	-0.09	0.04	-0.02
Mineral Products	-141	29	-146	54	-3	-150	-0.93	0.31	-0.41	0.14	0.00	-0.05
Textiles, Apparel, and Leather	2,189	49	2,103	820	68	2,171	19.99	0.45	7.21	0.34	0.02	0.55
Chemicals, Rubber, and Plastics	4,071	-1,208	3,229	324	2,019	5,248	3.78	-2.07	0.89	0.09	0.18	0.35
Ferrous Metals	977	-225	927	171	711	1,637	5.27	-1.55	2.77	0.23	0.29	0.59
Non-ferrous Metals	-124	-116	-234	106	309	74	-0.71	-0.33	-0.35	0.12	0.18	0.03
Metal Products	-97	-169	-191	207	1,242	1,051	-0.43	-1.28	-0.42	0.28	0.23	0.18
Automotive	6,720	-5,366	1,905	-3,484	16,646	18,552	5.56	-2.86	0.88	-0.92	2.19	1.90
Transport Equipment	-140	-250	-635	31	-223	-858	-0.77	-1.27	-0.40	0.03	-0.08	-0.19
Electronic Equipment	174	-574	-481	572	-1,128	-1,609	0.43	-0.79	-0.23	0.12	-0.17	-0.19

Source: Authors' calculations.

Table C2: Continued

Machinery	-1,038	-929	-1,553	323	206	-1,346	-0.92	-0.96	-0.53	0.08	0.02	-0.09
Other Manufacturing	-199	-193	-336	86	14	-322	-1.00	-0.78	-0.39	0.05	0.00	-0.04
Construction	0	0	-4	1	-1,826	-1,830	-1.26	0.98	-0.04	0.01	-0.06	-0.06
Trade	-90	30	-125	89	1,373	1,249	-1.99	1.23	-0.39	0.23	0.03	0.03
Transport	-140	135	-205	170	158	-47	-1.63	1.57	-0.19	0.13	0.01	0.00
Communications	-118	40	-124	45	-208	-331	-7.62	3.05	-0.62	0.25	-0.03	-0.04
Financial Services	1,031	556	963	610	-849	114	8.29	6.64	0.87	0.58	-0.03	0.00
Business Services	-1,171	-455	-1,262	-298	597	-665	-22.10	-5.34	-0.81	-0.20	0.02	-0.02
Recreation	-127	36	-163	46	-225	-387	-1.51	1.45	-0.27	0.29	-0.01	-0.02
Other Services	-328	47	-399	56	-910	-1,309	-2.33	1.29	-0.29	0.10	-0.01	-0.01
Total	10,232	-9,550	1,912	-458	17,751	19,663	1.45	-1.12	0.07	-0.01	0.05	0.05

Source: Authors' calculations.

Appendix D: Services and Investment Impacts in Detail

We develop the services sector shock for the CUSMA based on changes to the OECD services trade restrictiveness index (STRI), taking into account both changes to applied measures and in bindings. Similarly, for investment, we develop the CUSMA policy shock based on changes to the OECD foreign direct investment restrictiveness (FDIR) index, taking into account both changes to applied measures and the effect of changes in bindings for services sector Mode 3 market access (i.e. market access via a commercial presence).

1. From Negative to Positive List for Binding of Commitments

The CUSMA has several new commitments that promise to have a liberalizing effect for trade in services and investment relative to the NAFTA. However, these commitments need to be seen in light of parties' specific schedule of commitments, since all three parties in CUSMA have included an "escape clause" in their schedule of commitments, whereby they reserve the right to adopt or maintain any measure that is not inconsistent with their obligations under the GATS. This is set out in Article 15.7: Non-Conforming Measures; the US version of this escape clause is as follows:

> *The United States reserves the right to adopt or maintain any measure that is not inconsistent with the United States' obligations under Article XVI of the General Agreement on Trade in Services as set out in the U.S. Schedule of Specific Commitments under the GATS (GATS/SC/90, GATS/SC/90/Suppl.1, GATS/SC/90/Suppl.2, and GATS/SC/90/Suppl.3). For purposes of this entry only, the U.S. Schedule of Specific Commitments is modified as indicated in Appendix II-A.*

This structure transforms the "negative list" framing of the NAFTA (which automatically covers all services, including new ones that might emerge due to technological change or business innovation, unless they are specifically excluded by the text) to a "positive list", whereby only the specific sectors as defined in the 1994 GATS schedules of commitments are covered by the commitments. While this only affects the CUSMA impact through the binding of the services and investment commitments, this is not insignificant since most of the effect of the NAFTA came through its binding effect relative to the GATS.

The tables below show where the parties have reverted in CUSMA from their current bound level under NAFTA to GATS-level commitments, thereby increasing uncertainty about the future regulatory regime. This uncertainty cannot be taken lightly given the deliberate construction of the unbinding effect.

Table D1: Measures affected by Unbinding – Canada

Sectors	Commitments
Accounting	• Legal form: corporation is prohibited (auditing) • Managers must be national (auditing) • Managers must be resident (auditing) • Prior or permanent residency is required for Licence to practice (accounting)
Architecture	• Legal form: corporation is prohibited (auditing) • Managers must be national (auditing) • Managers must be resident (auditing) • Prior or permanent residency is required for Licence to practice (accounting)

Table D1: Continued

Sectors	Commitments
Broadcasting	• Foreign equity restrictions: maximum foreign equity share allowed (broadcasting non-terrestrial) • Foreign equity restrictions: maximum foreign equity share allowed (broadcasting terrestrial) • Legal form: only joint ventures are allowed • Legal form: other restrictions • The number of foreign channels is limited by quotas • Managers must be national • Foreign channels are subject to economic needs test • There are residency requirements for TV producers • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Performance requirements • Commercial presence is required in order to provide cross-border services • Limitations on downloading and streaming affecting cross-border trade • Local content: replication and processing requirements • Local content: Obligations to perform dubbing and/or subtitling locally • Local content: limitations on cast and crew • Royalties collected are distributed in an equitable and non-discriminatory manner
Engineering	• Managers must be national • Managers must be resident
Legal	• Foreign equity restrictions: maximum foreign equity share allowed (domestic law) • Foreign equity restrictions: maximum foreign equity share allowed (international law) • Legal form: only joint ventures are allowed (domestic law) • Legal form: sole proprietorship is prohibited (domestic law) • Legal form: corporation is prohibited (domestic law) • Legal form: partnership is prohibited (domestic law) • Legal form: other restrictions (domestic law) • Managers must be national (domestic law) • Managers must be resident (domestic law) • Screening exists without exclusion of economic interests • Acquisition and use of land and real estate by foreigners is restricted • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Restrictions on cross-border mergers and acquisitions (M&A) • Performance requirements • Commercial presence is required in order to provide cross-border services • Nationality or citizenship required for Licence to practice (domestic law) • Nationality or citizenship required for Licence to practice (international law) • Prior or permanent residency is required for Licence to practice (domestic law) • Prior or permanent residency is required for Licence to practice (international law) • Domicile required for Licence to practice (domestic law) • Domicile required for Licence to practice (international law) • Use of foreign firm names is restricted
Maritime	• Foreign equity restrictions: maximum foreign equity share allowed • Legal form: only joint ventures are allowed • Legal form: other restrictions • Managers must be national • Managers must be resident • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Restrictions on cross-border mergers and acquisitions (M&A) • Statutory monopoly on port services • Restrictions on the number of Licences/concessions • Restrictions in the awarding of port Licences/concessions • Restrictions on the chartering of vessels • Performance requirements

Source: Evaluation by the study team.

Table D2: Measures affected by Unbinding – Mexico

Sectors	Commitments
Legal	• Prior or permanent residency is required for Licence to practice (domestic law) • Prior or permanent residency is required for Licence to practice (international law) • Domicile required for Licence to practice (domestic law) • Domicile required for Licence to practice (international law)
Maritime	• Foreign equity restrictions: maximum foreign equity share allowed • Legal form: only joint ventures are allowed • Legal form: other restrictions • Managers must be national • Managers must be resident • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Restrictions on cross-border mergers and acquisitions (M&A) • Statutory monopoly on port services • Restrictions on the number of Licences/concessions • Restrictions in the awarding of port Licences/concessions • Restrictions on the chartering of vessels • Performance requirements

Source: Evaluation by the study team.

Table D3: Measures affected by Unbinding – United States

Sectors	Commitments
Accounting	• Legal form: partnership is prohibited (auditing) • Nationality or citizenship required for Licence to practice (accounting) • Prior or permanent residency is required for Licence to practice (accounting) • Prior or permanent residency is required for Licence to practice (auditing) • Domicile required for Licence to practice (accounting) • Domicile required for Licence to practice (auditing)
Architecture	• Nationality or citizenship required for Licence to practice • Prior or permanent residency is required for Licence to practice • Domicile required for Licence to practice

Table D3: Continued

Sectors	Commitments
Legal	• Foreign equity restrictions: maximum foreign equity share allowed (domestic law) • Foreign equity restrictions: maximum foreign equity share allowed (international law) • Legal form: only joint ventures are allowed (domestic law) • Legal form: sole proprietorship is prohibited (domestic law) • Legal form: corporation is prohibited (domestic law) • Legal form: partnership is prohibited (domestic law) • Legal form: other restrictions (domestic law) • Managers must be national (domestic law) • Managers must be resident (domestic law) • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Commercial presence is required in order to provide cross-border services • Nationality or citizenship required for Licence to practice (domestic law) • Nationality or citizenship required for Licence to practice (international law) • Prior or permanent residency is required for Licence to practice (domestic law) • Prior or permanent residency is required for Licence to practice (international law) • Use of foreign firm names is restricted
Maritime	• Foreign equity restrictions: maximum foreign equity share allowed • Legal form: only joint ventures are allowed • Legal form: other restrictions • Managers must be national • Managers must be resident • Restrictions on the type of shares or bonds held by foreign investors • Conditions on subsequent transfer of capital and investments • Restrictions on cross-border mergers and acquisitions (M&A) • Statutory monopoly on port services • Restrictions on the number of Licences/concessions • Restrictions in the awarding of port Licences/concessions • Restrictions on the chartering of vessels • Performance requirements

Source: Evaluation by the study team.

2. D2. Liberalization on an Applied Basis

In financial services, there is currently no maximum time limit for the regulator to make decisions on applications in all three parties. This will change following implementation of CUSMA. In Canada, there is no legal time limit on the assessment of applications for Letters Patent, but 80% should be processed in less than 90 calendar days of receipt under Service Standard 4. For applications under Service Standard 1 (i.e., Superintendent deemed approvals), once OSFI determines the application is complete, it has 30 days to approve or deny the application or issue a notice of extension, otherwise the application is deemed approved (976 BA).[20] According to Article 17.13 "Transparency and Administration of Certain Measures" of the Financial Services Chapter, if a Party requires authorization for the supply of a financial service, it shall ensure that its financial regulatory authorities provide an indicative timeframe for processing of an application.

The tables below document the other areas where the CUSMA liberalizes applied practice as regards services market access for each of the three parties, based on mandatory changes to their scores on the parties' STRI.

Table D4: Liberalization on an Applied Basis – Canada

Sector/Sub-sector	Market Access Improvements
Accounting, Auditing, and Book-keeping services	Under Mode 1 remove: Auditing • Commercial presence requirement: Nova Scotia. • Citizenship requirement for accreditation: Manitoba and Quebec. • Permanent residence requirement for accreditation: Ontario.
Railway passenger and freight transport	Under Mode 1 remove: • cabotage limitation
Road Passenger Transportation	Under Mode 3 remove: Interurban bus transport and scheduled services: • Public convenience and needs test (Criteria related to approval include: examination of the adequacy of current levels of service; market conditions establishing the requirement for expanded service; the effect of new entrants on public convenience, including the continuity and quality of service, and the fitness, willingness and ability of the applicant to supply proper service.): Prince Edward Island.
Road Freight transportation	Under Mode 3 remove: Highway freight transportation • Public convenience and needs test (Criteria related to approval include: examination of the adequacy of current levels of service; market conditions establishing the requirement for expanded service; the effect of new entrants on public convenience, including the continuity and quality of service, and the fitness, willingness and ability of the applicant to supply proper service.): British Columbia, Manitoba, Ontario, Prince Edward Island, Nova Scotia.

20 *Bank Act* (Bank Act (S.C. 1991, c. 46), adopted 1991, with latest modifications of 26.03.2018, Sections 976 and 976.1), OSFI Guide for incorporating banks Application timeframes, and OSFI Service Standards

Table D5: Liberalization on an Applied Basis – Mexico

Urban planning and landscape architectural services	No limitations for modes 1-3
Consultancy and technical services for engineering	No limitations for modes 1-3
No limitation on performance requirements	The international traffic only may be routed through international ports of a natural person or juridical person with a concession granted by the regulatory agency to install, operate or use a public telecommunication network in the Mexican territory authorized to provide long distance service.

Table D6: Liberalization on an Applied Basis – United States

Sector/Subsector	Market Access Improvements
Accounting, Auditing, and Bookkeeping Services	Modify mode 3 limitation as follows: Sole proprietorships or partnerships are limited to persons licensed as accountants
Multi-channel video services over provider owned cable systems	New commitments with no limitations for modes 1-3
Motion Picture & Video Tape Home Video Entertainment Production and Distribution	No limitations for modes 1-3
Cargo-handling services, Storage and warehouse services, and Freight transport agency services, except maritime or air transport services	New commitments with no limitations for modes 1-3

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