INSTITUT C.D. HOWE INSTITUTE

WORKING PAPER

The NAFTA Renegotiation: What if the US Walks Away?

In a unique economic modelling exercise the authors examine the effects of US withdrawal from the North American Free Trade Agreement. They outline the effects on all three nations under three different scenarios. The results are disquieting.

Dan Ciuriak, Lucy Ciuriak,
Ali Dadkhah, and Jingliang Xiao

About The Authors

Dan Ciuriak
is Fellow-in-Residence with the C.D. Howe Institute (Toronto), Senior Fellow with the Centre for International Governance Innovation (Waterloo), Associate with BKP Development Research & Consulting GmbH (Munich), and Director and Principal, Ciuriak Consulting Inc. (Ottawa).

Lucy Ciuriak
is a Consultant at Ciuriak Consulting.

Ali Dadkhah
is a Research Associate at Ciuriak Consulting Inc.

Jingliang Xiao
is a Research Associate at Ciuriak Consulting and responsible for policy modelling.

Working Paper
November 2017
Trade and International Policy

ISBN 978-1-987983-48-7
ISSN 0824-8001 (print);
ISSN 1703-0765 (online)

The C.D. Howe Institute's Commitment to Quality, Independence and Nonpartisanship

The C.D. Howe Institute's reputation for quality, integrity and nonpartisanship is its chief asset.

Its books, Commentaries and E-Briefs undergo a rigorous two-stage review by internal staff, and by outside academics and independent experts. The Institute publishes only studies that meet its standards for analytical soundness, factual accuracy and policy relevance. It subjects its review and publication process to an annual audit by external experts.

As a registered Canadian charity, the C.D. Howe Institute accepts donations to further its mission from individuals, private and public organizations, and charitable foundations. It accepts no donation that stipulates a predetermined result or otherwise inhibits the independence of its staff and authors. The Institute requires that its authors publicly disclose any actual or potential conflicts of interest of which they are aware. Institute staff members are subject to a strict conflict of interest policy.

C.D. Howe Institute staff and authors provide policy research and commentary on a non-exclusive basis. No Institute publication or statement will endorse any political party, elected official or candidate for elected office. The Institute does not take corporate positions on policy matters.

Daniel Schwanen
Vice President, Research

The Study In Brief

The renegotiation of the North American Free Trade Agreement (NAFTA) opens up the possibility of the trade agreement lapsing.

Using a multi-sector, multi-region computable general equilibrium model and the widely used Global Trade Analysis Project model we evaluate what would happen if trade between Canada, the United States and Mexico reverted to the rules under the World Trade Organization. We also consider the impact if NAFTA lapses but the Canada-US free trade agreement (CUSFTA) remains in place; and scenarios under which free trade would continue between Canada and Mexico. The key findings are as follows:

- NAFTA lapsing hurts all three NAFTA parties in terms of forgone household income, jobs and growth. Real GDP in the NAFTA region would be 0.225 percent smaller without NAFTA than with it, trade would fall by over US$120 billion, economic welfare would be close to $60 billion lower, wages lower on account of productivity declines, and job totals across the NAFTA parties reduced by about 220,000.
- Walking away from NAFTA does not resolve US concerns about bilateral trade deficits; the United States suffers about as large a drop in its bilateral exports to NAFTA partners as it reduces imports from them.
- The US suffers relatively small negative effects compared to the size of its economy but these are concentrated in the automotive sector and the farm belt.
- Key impacts on Canada are as follows:
- Taking into account the redirection of Canadian exports to third parties, total exports would decline by about US$20 billion or 2.8 percent.
- Canada experiences a decline in household income of $15 billion and a loss of real GDP of 0.55 percent. These negative impacts would be abated only moderately (about $3 billion less income decline and 0.08 less of a decline in real GDP) if Canada and Mexico continue under NAFTA or retain free trade under the Comprehensive Progressive Agreement for Trans-Pacific Partnership (CPTPP).
- Job losses could be in the 25-50 thousand range due to long-term worker exit from the labour force, even after full employment in the post-NAFTA economy has been re-established. Temporary unemployment during a possibly long adjustment period could add very significantly to these losses. Retaining free trade with Mexico would reduce these losses by 4-8 thousand.
- Industrial products in the chemicals, rubber and plastics complex and automotive sectors experience large declines in bilateral exports to NAFTA partners; these losses are partly compensated by re-orientation towards third markets and to the domestic market, in part filling gaps resulting from declining bilateral imports. Total sales of these sectors fall by $3-4 billion.

Canada's economy could remain essentially unharmed if NAFTA is terminated but the CUSFTA is preserved and could even make marginal gains in trade, real GDP and economic welfare if Canada's bilateral relations with Mexico remain liberalized. Mexico, however, would not be able to escape significant negative impacts.

Barry Norris and James Fleming edited the manuscript; Yang Zhao prepared it for publication. As with all Institute publications, the views expressed here are those of the authors and do not necessarily reflect the opinions of the Institute's members or Board of Directors.

To order this publication please contact: the C.D. Howe Institute, 67 Yonge St., Suite 300, Toronto, Ontario M5E 1J8. The full text of this publication is also available on the Institute's website at www.cdhowe.org.

The request by the United States to renegotiate the North American Free Trade Agreement (NAFTA) opens up the possibility of the trade agreement lapsing.

We evaluate what would happen if trade between Canada, the United States and Mexico reverted to the rules under the World Trade Organization using a computable general equilibrium model. We also consider the impact if NAFTA lapses but the Canada-US free trade agreement (CUSFTA) remains in place; NAFTA lapses, CUSFTA remains in place, and if Canada and Mexico continue their NAFTA commitments under a separate free trade agreement. The key findings are as follows:

- NAFTA lapsing hurts all three NAFTA parties in terms of foregone household income, jobs and growth. Real GDP in the NAFTA region would be 0.225% smaller without NAFTA than with it, economic welfare would by close to $60 billion (All figures US) lower, and job totals across the NAFTA parties reduced by about 220,000.
- While the improvement that NAFTA represents over trading under World Trade Organization (WTO) rules has been narrowed over the years due to multilateral liberalization under WTO auspices, NAFTA still provides a boost to trade amongst the three parties of over $120 billion.
- Walking away from NAFTA does not resolve US concerns about bilateral trade deficits; the United States suffers about as large a drop in its bilateral exports to NAFTA partners at the same time as it reduces imports from them by reverting to WTO most favoured nation (MFN) rules.
- The US suffers relatively small negative effects compared to the size of its economy but these are concentrated in the automotive sector and the farm belt. This concentration of negative impacts represents an obvious domestic political obstacle to US termination. In turn, this suggests protracted talks.
- Canada is essentially saved harmless if NAFTA is terminated but the CUSFTA is preserved and even stands to make marginal gains in trade, real GDP and welfare if Canada's bilateral relations with Mexico remain liberalized.
- Mexico experiences the largest impact in percentage terms and faces the largest adjustment challenges for its industrial sector. However, its agricultural sector, which experienced deep inroads from US imports, expands its total shipments by reclaiming domestic market share, easing the adjustment pressures.

Introduction

The United States request to renegotiate the North American Free Trade Agreement (NAFTA) has opened up the possibility of talks breaking down and the trade agreement lapsing. This note considers what this might mean for NAFTA trade and the Canadian, US and Mexican economies. In particular, we evaluate the trade and economic impacts of the United States walking away from the NAFTA under three alternative scenarios regarding the reaction of Canada and Mexico.

(a) First, we show the implications of the three Parties reverting to World Trade Organization (WTO) rules for trade amongst themselves, including the imposition of most-favoured national (MFN) tariffs to all intra-NAFTA trade. This implies the United States walks away from the Canada-US FTA (CUSFTA) as well as from NAFTA.

(b) Second, we show the implications of the NAFTA lapsing but the CUSFTA remaining in force between Canada and the United States.

(c) Third, against the backdrop of scenario (b), we show the implications of Canada and Mexico retaining bilateral free trade under NAFTA terms between themselves,[1] under a new Canada-Mexico FTA, or indeed under the terms of the Comprehensive Progressive Agreement for Trans-Pacific Partnership (CPTPP), to which both Canada and Mexico are prospective parties.

WTO rules for preferential trade would require Canada and Mexico to raise tariffs on the United States to MFN levels if the latter withdraws from the NAFTA. NAFTA tariffs could only be maintained vis-à-vis the United States if Canada and Mexico also lowered tariffs to comparable levels vis-à-vis every other supplier. Non-retaliation is not an option, although unilateral liberalization with all trade partners, including the United States, is conceivable.

In terms of shocks, we focus on the tariff implications, but also take into account the impact of removing NAFTA provisions that ease services market access, including the implications of increased uncertainty concerning whether US might revert from current applied practice to the minimum requirements under the WTO General Agreement on Trade in Services (GATS). Finally, we include a shock to investment, focusing on the implications of heightened uncertainty about future market access for cross-border trade, given the renewed risk of unilateral US trade actions.

Background and Context

The NAFTA renegotiation is like no other in the postwar period. Up to now, multilateral, regional and bilateral agreements have aimed at reducing barriers to trade and investment, both at the border and inside the border. In recent decades, there has been an explicit focus on enabling so-called "deep economic integration", reflecting a consensus on its mutual benefits. The NAFTA talks, however, feature a shift to an emphasis by the larger partner on raising barriers to access to its own market, while requiring the two smaller economies to lower theirs. And by weakening or removing binding dispute settlement provisions, the US negotiating position would increase uncertainty for trading and investing firms, creating new non-tariff barriers (NTBs) to trade.

There is an important historical arc here, however, which sheds light on what is at play in terms of the reach of measures in trade agreements and as regards the timing of the US request. Trade imbalances and the nature of US trade interests play a key role.

The early postwar multilateral negotiations under the General Agreement on Trade and Tariffs (GATT), which came into effect in 1948, focused primarily on tariffs and other border measures that constituted NTBs to market entry. Congress, ever mindful of its sovereignty over US economic policy, did not shrink from asserting its authority over rules changes, as when it rejected the Kennedy Round's negotiated elimination of the American Selling Price valuation system that protected some sensitive import items by imposing import duties based on the basis of the (higher) domestic selling price (Curtis, 2002).

The Tokyo Round (1973-1979) featured a spate of supplementary agreements that addressed behind-the-border issues – subsidies, government procurement, standards, as well as strengthened procedures that substantially expanded GATT's role in resolving trade disputes. What changed? The Tokyo Round was negotiated in the context of Japan's surging presence in global trade – "Red Sun

1 NAFTA Article 2205 states that: "If a Party withdraws, the Agreement shall remain in force for the remaining Parties." So while Canada and Mexico would be free to decide to amend the NAFTA to reflect the new bilateral reality if the US withdraws, until they do so the NAFTA would continue as is between them as the two "remaining Parties". We are indebted to Matthew Kronby for clarifying this.

Rising" read the headlines of the day. Japan's trade surplus soared in the late 1970s and the United States, which had been consistently in current account surplus during the postwar period, found itself with a rapidly rising deficit. The United States saw Japan's domestic economic practices as the source of the problem and pressed for strengthened trade rules, including rules that aimed to reach well inside the border – the Japanese border (Curtis, 2002).

The Uruguay Round (1986-1994), which created the World Trade Organization (WTO), introduced still deeper constraints on domestic regulation with the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) and a much-strengthened dispute settlement mechanism, that removed the ability for a a single member to veto a ruling. Timing and context again are instructive. The launch of the round followed hot on the heels of the Plaza Accord on exchange rates, which devalued the US dollar in an attempt to correct US trade imbalances with Germany and Japan. This, however, did not resolve matters, in US eyes, and two years later Congress enacted Omnibus Trade and Competitiveness Act of 1988, which strengthened the Executive Branch's Section 301 powers to retaliate unilaterally against trading partners for "unfair trade practices". The justification for "Super 301" was that US competitiveness was being undermined by policies and practices that GATT rules did not adequately address (King, 1991; 246). The United States also directly targeted Japan's surpluses with the 1989 Structural Impediments Initiative (SII).

The evolving nature of US trade interests also led to a further widening of the issues addressed in trade agreements. Concern about risks to US innovation in the face of Japan's technological challenge led the Carter administration to adopt the Patent and Trademark Law Amendments Act, otherwise known as the Bayh–Dole Act, in 1980. The Economist (2002) provides the following retrospective on this initiative:

> "Remember the technological malaise that befell America in the late 1970s? Japan was busy snuffing out Pittsburgh's steel mills, driving Detroit off the road, and beginning its assault on Silicon Valley. Only a decade later, things were very different. Japanese industry was in retreat. An exhausted Soviet empire threw in the towel. Europe sat up and started investing heavily in America. Why the sudden reversal of fortunes? Across America, there had been a flowering of innovation unlike anything seen before … More than anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance."

The identification by the United States of its economic interests with intellectual property protection led to the inclusion of an intellectual property chapter in the 1989 Canada-US Free Trade Agreement, which in turn served as the model for US proposals in the Uruguay Round. Notably, this still deeper intrusion of trade rules required policy changes on the part of the US' main trading partners, but not to its own policies.

Trade imbalances also appear to have continued to play a role in driving US trade policy. The US external deficit peaked in 1987, which served as the statistical backdrop for US trade negotiators in the 1988 negotiations of the CUSFTA. However, as the US trade deficit shrank progress on trade slowed; the Uruguay Round talks, which had been launched in 1986, lost momentum and stalled at the failed Brussels Ministerial of 1990.

The next strong push by the United States on trade only came under the Clinton administration. with the US slide into external deficit as its recovery from the 1991 recession took hold. The Clinton administration's push on trade was a full-court press, including the endorsement of the report of the Asia Pacific Economic Cooperation (APEC) forum's Eminent Persons Group to achieve free trade in the zone at the 1993 meeting of APEC leaders in Seattle, the signing of the NAFTA, which entered into force in January, 1994, the

signing of the APEC Bogor Agreement for Asia-Pacific Free Trade adopted in November, 1994, and implementation of the WTO Agreement, which entered into force in January, 1995.

The trade agreements failed to arrest the growth of US deficits, however, as these exploded after the Asian and emerging market crisis of 1997-1998, when, en masse, developing countries flipped from running large external deficits to running current account surpluses to protect themselves from destabilization by hot money flows. With its economy buoyed by the technology boom of the late 1990s and the bubble economy of the 2000s, the US external deficit soared to as high as $800 billion or 5.8 percent of GDP in 2006. The new focus of US trade policy became China, which came under pressure for its bilateral trade surplus and currency policies.

The US directly pressured China on currency, backed by the threat of imposing across-the-board tariffs as retaliation for manipulation. However, the main element in the US response came as part of the pivot to Asia under the Obama Administration. This was the Trans-Pacific Partnership, an agreement that pointedly aimed to write the rules of Asia Pacific trade in opposition to China. The TPP reached deep behind the border of its signatories, with measures targeting state-owned enterprises, government procurement, labour and environmental rules, stronger rules on intellectual property, on the emerging digital economy, and even on exchange rates. Notably, the United States negotiated one-on-one with TPP parties, including on controversial aspects of the rules of origin, the agreement on which was concluded behind closed doors by the United States and Japan and presented to the other parties as a fait accompli.

So we can see that US concerns about bilateral trade imbalances and attempts to address them with direct bilateral initiatives or more generally through changing trade rules are not exactly new. Neither are bilateral approaches in a regional negotiation or the assertion of congressional sovereignty over international trade rules.

What is new in the US posture is the abandonment of the outward-oriented approach of previous administrations, which included making concessions to trading partners and complying with rules-based systems. The "globalist" approach is perceived by a significant minority of Americans – and more to the point at the highest levels of the current administration – as not working. Not only have trade deficits persisted, but America has de-industrialized, and rivals are closing the gap on technology. The reflexive move is to seek a return to the looser trade rules regime of the 1980s, if not all the way back to the reciprocal bilateralism of the 1930s.

The withdrawal from the TPP, the status quo-minus offers and status quo-plus demands that the United States has made in the NAFTA talks, the insistence on dropping the Chapter 19 binational panel review of the parties' anti-dumping and countervailing duty decisions, and the doubling down on "Buy America" procurement are not the only evidence for this.

It is also evident in the launch of a Super 301 investigation of China over the summer. This measure has rarely been used since the WTO agreement came into force. As Bown (2017) describes, in using the profoundly unilateral Super 301:

> "The US government acted as police force (identifying the foreign government's crime), prosecutor (making the legal arguments), jury (ruling on the evidence), and judge (sentencing the foreigner to US retaliatory punishment). And sometimes cases would involve issues without internationally agreed upon rules!"

It is also signalled by the rise in US application of anti-dumping and anti-subsidy measures, which raised the percentage of Canada's exports to the United States covered by such measures from 1 percent in 2016 to 8.8 percent on the basis of measures on steel, aluminium, softwood lumber and solar cells (Bown, 2017a), and to over 10 percent when prospective duties on Bombardier's C-Series are factored in.

Perhaps most ominously, it is signalled by the US stance in WTO affairs, including blocking of appointments to the WTO Appellate Body, which WTO Director General Roberto Azevêdo has called a "threat to trade peace," and blocking draft language that referred to the "centrality of the multilateral trading system" and the need to support "development" at a planning meeting for the biannual WTO Ministerial Conference (MC11) in Buenos Aires, December 2017.

We don't know how far this retrenchment in US policy thinking will go and what it portends for the global trading system. However, there appears to be no obvious landing zone for the current NAFTA negotiations that can deliver on the stated US goal of rebalancing bilateral trade within NAFTA, while leaving the agreement largely intact as a free trade agreement. For example, the US bilateral goods trade deficit with Mexico cannot be corrected by further Mexican liberalization – Mexico has minimal trade barriers in place facing US goods under NAFTA. Seeking to reduce the US deficit through protection would entail levels of US protection that likely would herald a sharp decline in international business, at significant costs to US and global standards of living. This lack of congruence points to a breakdown of talks rather than to a new deal. The concern is that this is the outcome the anti-globalist faction in the United States wants. In which case, the scenarios become a point of departure for discussing the post-NAFTA world rather than cautionary tales designed to avert a costly divorce.

Read on.

Simulation Results

The NAFTA scenarios are simulated using a multi-sector, multi-region computable general equilibrium (CGE) model. We employ a dynamic version of the widely used Global Trade Analysis Project (GTAP) model modified to directly represent foreign-owned firms in each sector of the economy to capture the impact on trade conducted through foreign affiliates. A detailed non-technical description of the model and modeling protocols is provided in a forthcoming Working Paper.

To simulate the NAFTA scenarios, we establish a baseline projection to 2023. The results reported are difference between the outcomes with the NAFTA shocks and the baseline. The reported impacts in 2023 may be interpreted as the permanent change in the level of output of the economy, once full equilibrium has been restored following the policy shocks, including the reallocation of capital and labour across sectors in response to the changed opportunities following the policy shocks.

The policy shocks include tariffs, non-tariff barriers affecting services, and non-tariff measures affecting investment. A detailed description of the construction of the policy shocks is given in the forthcoming Working Paper.

The following tables convert the impacts in the currency valuation of the original GTAP data, namely US dollars at 2011 prices to US dollars at 2017 prices. These data can be converted to current values in the other NAFTA currencies at 2017 prices using the following conversion factors, which are calculated on the basis of:

(a) IMF estimates of inflation in US dollar prices as measured by the US GDP deflator in the IMF World Economic Outlook (WEO) database of October, 2017, which are used to convert USD 2011 prices to USD 2017 prices

(b) Exchange rate conversions to CAD 2017 prices and MXN 2017 based on the estimated 2017 exchanges implicit in the IMF WEO October, 2017 database.

The conversion factors are as follows:

USD 2011 to USD 2017	1.0972
USD 2011 to CAD 2017	1.4257
USD 2011 to MXN 2017	20.9317

Source: International Monetary Fund, World Economic Outlook Database, October 2017; and calculations by the study team.

Regional Impacts

Trade Impacts

A full reversion to WTO rules for the NAFTA parties as per Scenario (1) results in a decline of total NAFTA exports of goods and services to the NAFTA region of about $122 billion or 8.65 percent by 2023 when the full impacts of the policy shocks have been in absorbed. Taking into account trade deflection toward other countries, total NAFTA exports of goods and services fall by about $86 billion (US) or about 2.2 percent by 2023 (Table 1), as about $36 billionin foregone NAFTA exports is redirected to third markets. Thus, the new trade barriers within NAFTA drive firms to seek sales in more distant markets, absorbing higher trade costs in so doing.

The negative impacts on trade are substantially softened if the CUSFTA holds (Scenario 2) and if Canada-Mexico trade continues under a CMFTA (Scenario 3); the reduction in intra-NAFTA trade narrows to the $67-70 billion range or on the order of 5 percent of baseline NAFTA exports.

For Canada, taking into account the redirection of Canadian exports to third parties, total exports would decline by about $20 billion or 2.8 percent – important but not apocalyptic. For Mexico, the decline is about $25 billion or 4.4 percent of its total exports. If the Canada-US FTA remains in place, Canada's trade volume is essentially unchanged – the estimates suggest minor trade gains, largely at Mexico's expense. If Canada and Mexico maintain free trade, Canada sees its NAFTA exports grow by $3.3 billion – this time through trade diversion at the expense of the United States.

Throwing up trade barriers within the NAFTA region also leads to import diversion as each NAFTA party replaces NAFTA imports with third-party imports (Table 2). The EU28 and China stand to benefit substantially in terms of export gains to the NAFTA zone, as indeed does the rest of the world in total. Non-NAFTA parties pick up $27 billionin additional exports to the NAFTA zone under scenario (1).

While the higher trade barriers do reduce US imports from NAFTA parties by more than $60 billion,this does nothing to help the US bilateral trade balance within NAFTA since exports to NAFTA partners fall by about $62 billion, in good measure due to the higher MFN tariffs that Mexico applies compared to the MFN tariffs in the United States.

Impacts on GDP and Economic Welfare

The simulations suggest that real GDP and economic welfare will fall in all the NAFTA countries. Pulling out of NAFTA costs the United States about $20 billion in welfare foregone and results in a decline in real GDP of about 0.09 percent. Mexico suffers the largest declines in welfare, $24 billion and in real GDP (close to 1.2 percent), while Canada comes out with the smallest decline in welfare, $15 billion and a loss of real GDP of 0.55 percent.

If the CUSFTA holds, Canada makes modest real GDP and welfare gains; if Canada and Mexico maintain free trade under a CMFTA, Canada's gains grow to about 0.08 percent in real GDP and $3.1 billion in additional household welfare.

From scenarios (1) and (2), we can work out the net benefit to Canada presently of the NAFTA: a gain of about 0.57 percent and economic welfare of about $16.5 billion. This is substantially smaller than estimates of the original gain under the CUSFTA. This is not unexpected since the NAFTA today represents much less of an improvement over the trade regime under WTO rules than it originally did. Canada has lowered its applied MFN rates since the CUSFTA was signed, including across the board under the WTO Agreement and unilaterally by eliminating tariffs on production inputs.

The NAFTA lapsing scenario for Canada can be compared to the Brexit impact on the UK. These

Table 1: Trade Impacts – Exports to NAFTA Partners and to the World, USD at 2017 prices

	(1) NAFTA Lapses		(2) CUSFTA Holds		(3) CMFTA	
	USD millions	Percent change	USD millions	Percent change	USD millions	Percent change
Exports to NAFTA Parties						
Canada	-25,830	-6.15	541	0.13	3,335	0.79
United States	-62,095	-10.66	-35,574	-6.11	-37,443	-6.43
Mexico	-34,107	-8.37	-35,282	-8.65	-33,052	-8.11
China	3,339	0.37	2,426	0.27	2,406	0.27
EU28	7,189	0.95	3,734	0.50	3,652	0.48
ROW	16,619	0.99	9,292	0.55	8,989	0.53
Memo: NAFTA	-122,032	-8.65	-70,316	-4.99	-67,160	-4.76
Exports to the World						
Canada	-19,852	-2.80	403	0.06	2,357	0.33
United States	-40,772	-1.50	-23,217	-0.85	-24,268	-0.89
Mexico	-25,137	-4.44	-25,840	-4.56	-24,202	-4.27
China	2,397	0.06	1,424	0.03	1,415	0.03
EU28	7,050	0.07	3,521	0.04	3,485	0.04
ROW	10,594	0.08	5,457	0.04	5,412	0.04
Memo: NAFTA	-85,761	-2.15	-48,654	-1.22	-46,114	-1.15

Note: ROW indicates Rest of the World.

Source: Calculations by the authors.

are roughly comparable events – the lapsing of a long-standing free trade arrangement with each country's main and much larger trading partner. Applying the same model and the same modelling protocol (see Ciuriak et al., 2017), the impact of Brexit on the UK is a decline in real GDP from tariffs, services and foreign direct investment (FDI) shocks (i.e., excluding border effects from the loss of the Single Market) of about -0.94 percent. This is larger than the impact of NAFTA and CUSFTA lapsing on Canada of -0.57 percent. However, the simple average MFN applied tariff for the EU currently, which would apply to UK-EU27 trade in both directions under Brexit, is 5.2 percent. By comparison, the United States currently has a simple average applied MFN tariff of 3.5 percent (WTO, 2017), with 46 percent of applied MFN tariffs set at zero. Comparable figures for Canada are 4.1 percent and 75.6 percent respectively. Moreover, the areas where Canada maintains significant protection –supplied managed dairy and poultry – are not impacted by NAFTA lapsing. The major difference between NAFTA lapsing and Brexit is that the latter event also results in the emergence of a new hard customs border, which creates additional trade costs across the board.

Table 2: Trade Impacts – Imports from NAFTA Partners and the World, USD at 2017 prices

	(1) NAFTA Lapses		(2) CUSFTA Holds		(3) CMFTA	
	USD millions	Percent change	USD millions	Percent change	USD millions	Percent change
Imports from NAFTA						
Canada	-27,438	-7.31	476	0.13	3,187	0.85
United States	-60,501	-7.25	-32,790	-3.93	-34,896	-4.18
Mexico	-41,118	-14.62	-42,244	-15.02	-39,514	-14.05
China	5,290	1.51	3,156	0.90	3,057	0.87
EU28	10,961	1.42	6,298	0.82	6,113	0.79
ROW	22,056	1.49	13,462	0.91	13,079	0.88
Memo: NAFTA	-129,057	-8.65	-74,558	-5.00	-71,223	-4.78
Imports from World						
Canada	-22,016	-3.20	573	0.08	2,823	0.41
United States	-47,568	-1.26	-26,800	-0.71	-28,195	-0.75
Mexico	-31,021	-6.18	-32,067	-6.39	-30,016	-5.98
China	4,730	0.13	2,912	0.08	2,860	0.08
EU28	11,203	0.11	6,148	0.06	6,022	0.06
ROW	18,954	0.14	10,941	0.08	10,705	0.08
Memo: NAFTA	-100,604	-2.03	-58,293	-1.18	-55,388	-1.12

Note: ROW indicates Rest of the World.

Source: Calculations by the authors.

Sources of the Impacts

The impacts in 2023 can be decomposed by policy shock: (a) tariff impacts; (b) new services NTBs; and (c) new barriers to FDI. Tariffs account for close to 90 percent of the total impact on NAFTA welfare for the three parties combined. For Canada, the tariff share is only about 78 percent. Services and FDI NTBs contribute smaller negative impacts; these are attributable mainly to the greater uncertainty about future market access from the removal of NAFTA commitments.

The tariff effects would vary across product groups. This reflects the large number of tariff lines that are set at zero on an MFN basis by both Canada and the United States. For those product groups for which NAFTA does matter, the lapsing of NAFTA would actually partly reduce trade costs by removing the need for rules of origin certification, not to mention freeing up supply chain sourcing to seek out the global best buy over potentially higher-cost NAFTA suppliers. While this effect is only partly captured in the model, which implies an over-statement of tariff impacts, the modelling also does not take into account the heightened uncertainty about access to the US market in the absence of NAFTA disciplines, which would work to deepen the negative tariff impacts.

Table 3: GDP and Economic Welfare Impacts, 2023, USD at 2017 Prices/percent

	(1) NAFTA Lapses		(2) CUSFTA Holds		(3) CMFTA	
	Real GDP (percent change)	Welfare (USD Millions)	Real GDP (percent change)	Welfare (USD Millions)	Real GDP (percent change)	Welfare (USD Millions)
Canada	-0.545	-15,100	0.028	1,433	0.080	3,146
United States	-0.091	-19,894	-0.043	-8,781	-0.047	-10,383
Mexico	-1.162	-23,621	-1.217	-25,066	-1.146	-23,527
China	0.026	5,663	0.018	3,678	0.017	3,602
EU28	0.027	8,159	0.016	4,875	0.016	4,676
ROW	0.032	17,116	0.020	10,308	0.020	10,095
Memo: NAFTA	-0.225	-58,614	-0.132	-32,413	-0.123	-30,765

Source: Calculations by the authors.

On balance, we expect the tariff shock understates the impact of NAFTA lapsing on goods trade.

As regards investment, analyzed in a formal model, the small impacts from the changes in the FDI regime reflect the fact that NAFTA legal measures reduce investment incentives only marginally. Moreover, less FDI from the United States into Canada creates room for domestic investors and economic theory suggests they will take up that room, in the fullness of time. The difference between FDI and domestic investment is in efficiency – foreign investment is done by firms that are more productive than the average domestic firm,[2] hence less capital is required to achieve the same level of output. By the same token, a reduction of inward FDI requires a larger amount of domestic investment to restore equilibrium in rates of return.

The overall level of foreign investment in the NAFTA lapsing scenario would of course be lower by more than the reduction due to the new disincentives for FDI. This would reflect the reduced incentives for investment in Canada given the lower real GDP and export levels. However, this would be a macroeconomic effect, not the effect of the changes due to the lapsing of the NAFTA investment regime, and thus is not attributed to the changes in the FDI regime.

A larger concern would be corporate decisions on using Canada for North American and global product mandates; uncertainty about future market access in the United States could tilt such decisions to choosing US locations. Accordingly, the present simulations likely understate the negative impact from investment, occurring in addition to that

2 Helpman, Melitz and Yeaple (2004) show that, just as exporters have a productivity advantage over non-exporters, multinational firms have a productivity advantage (estimated at about 15 percent) over non-multinational exporters; they observe that this result is consistent with the usual finding that foreign-owned affiliates are more productive than domestically owned producers.

due to the lapsing of formal NAFTA investment disciplines.

Macroeconomic Impacts by NAFTA Party

When we look at the main macroeconomic aggregates for **Canada** relative to the baseline in 2023 for the three scenarios. Canada absorbs a significant decline in real GDP of -0.55 percent and a decline in welfare of $13.8 billion. Reflecting a significant decline in Canada's terms of trade the decline in the value of GDP is greater at about 0.95 percent or about $25 billion.

The negative impacts on Canadian macroeconomic performance are led by investment and real exports, resulting in lower productivity. Productivity falls by less than real wages which is symmetric with the case when output and productivity are rising: real wages tend to lag behind productivity growth.

If CUSFTA holds, Canada comes out ahead, in part due to gaining some market share in the United States at Mexico's expense. The value of Canada's GDP rises by about $3.6 billion, boosted by price effects; real GDP edges up by 0.028 percent and welfare by $1.4 billion.

If Canada and Mexico continue their free trade relationship, Canada makes about $7 billion in gains in terms of the value of GDP, primarily due to improved terms of trade (that is, improvements in export prices relative to import prices) and this time partly at the expense of the United States. Real GDP rises by 0.08 percent and welfare by $3.1 billion.

The decline in real GDP in the NAFTA lapsing scenario is about one-fifth the real decline in two-way trade, consistent with historical experience. This ratio is also about one-fifth in the CMFTA scenario, and remains within reasonable bounds in the CUSFTA holds scenario.

The macroeconomic impacts on the **United States** are relatively small in percentage terms, reflecting the comparatively small share of goods trade in US GDP and the smaller exposure the United States has to Canada and Mexico when compared to its global trade. The impact of NAFTA lapsing is, however, negative across the board, with the one exception that the US trade balance does improve on a global basis. This, however, is not due to improving its trade balance with NAFTA partners, but by virtue of shrinking the economy and thus shrinking total import demand.

The main observations on the nature of the shocks to the US economy are similar to those regarding Canada. Real GDP declines by -0.09 percent but, due to declining terms of trade, the value of GDP falls by substantially more, -0.25 percent, equivalent to about $53 billion. The decline in the US terms of trade is due to the reciprocal nature of the tariff shock (and in particular the high tariffs imposed by Mexico). Welfare falls by a relatively modest $20 billion. US producers would feel the impact of NAFTA lapsing more than US consumers.

The negative impacts on US macroeconomic performance are led by investment and exports, resulting in lower productivity. Real wages fall somewhat more than productivity.

If the CUSFTA hold, the United States cuts its losses in half, which suggests that the benefits to the United States of the NAFTA are roughly equally due to trade with Canada and trade with Mexico.

The decline in real GDP in the NAFTA lapsing scenario is small compared to the real decline in two-way trade (ratio of about 0.07 compared to a benchmark of about 0.20). This suggests that the model results might be understating somewhat the real GDP decline in the United States and that the actual decline would be somewhat closer to that recorded for the value of GDP.

If Canada and Mexico agree to continue with bilateral free trade under a CMFTA, the US losses widen marginally. For the most part, the US would be indifferent to whether or not Canada and Mexico continue with free trade.

Mexico is hardest hit of the NAFTA parties. The decline in GDP in value terms of about -2.5 percent, equivalent to about $47 billion, is

considerably larger than the decline in volume terms of about -1.2 percent. Welfare declines by about $24 billion.

Investment and real exports lead the decline and Mexico's global trade balance improves due to the compression of imports. If CUSFTA holds, the impacts on Mexico deepen with GDP falling in value terms by -2.7 percent and in volume terms by -1.22 percent. These losses are clawed back under the CMFTA scenario, but the losses from lapsing free trade with the United States remain.

The macroeconomic scenarios accord with expectations concerning the ratio of real growth to Labour Markets

The CGE model generates an impact on the total labour input in the economy. This labour input can be interpreted as productivity changes or as changes in the number of jobs or as some combination of both. Modern trade theory demonstrates that trade liberalization transfers market share from less productive firms to more productive firms, and that the more productive firms pay higher wages. Accordingly, in a trade liberalization event, we would expect wages and productivity to rise in tandem.

If labour markets eventually clear, the change in jobs would be due not to unemployment (although unemployment would undoubtedly rise for a time as labour is reallocated across sectors and firms), but to changes in labour force participation. Changes in labour force participation would reflect changing real wages. In a NAFTA lapsing scenario, where real wages fall, it would be expected that some marginally attached workers would drop out of the labour market and choose not to work instead. This would lead to a lower total employment, even when labour markets have cleared.

While the model itself does not shed light on the split between productivity and wages, it is possible to estimate the order of magnitude of these impacts. We provide two estimates: one is based on an estimate of the wage elasticity of employment – that is, of the responsiveness of labour supply to changes in real wages. For the latter parameter, we use an estimate of 0.3 based on Evers et al. (2008). We note that the USITC (2016) uses an estimate of 0.4 from its study of the TPP impact on US jobs. The second is based on an assumption that half the net labour input reduction under the NAFTA lapsing scenario is in productivity and the other half in jobs.

To develop these estimates, we first project total employment for Canada, the United States and Mexico in 2023, based on the IMF World Economic Outlook population projection and estimates of the employment/population ratio. For Canada and the United States, the IMF provides an estimate of this ratio for 2018; we extend this to 2023. For Mexico, we draw on OECD estimates of the labour force and unemployment rate for 2016 and calculate an employment-to-population ratio using the resulting employment total and the IMF 2016 estimate of Mexico's population.

For the first estimate, we multiple the average decline in real wages for skilled and unskilled labour by the assumed wage elasticity of 0.3 to generate the estimate of the percentage change in jobs and apply that to the level of employment in 2023 to generate the job loss estimate on this basis. For the second estimate, we use CGE model estimates for real GDP, assuming an equal contribution from employment and productivity, to generate the percentage change in employment. This is applied to the level of employment in 2023 to generate a job loss estimate.

Comparing the results, the 50 percent assumption is found to be consistent with a wage elasticity of labour supply of about 0.6, which is well within the range of estimates for this parameter.

For Canada, the implication of NAFTA lapsing would be a job loss in the 25-50 thousand range; for the United States, in the 35-70 thousand range; and for Mexico, in the 150-300 thousand range. Under the CUSFTA holds and CMFTA scenarios, Canada would stand to make modest job gains, while the United States would cut its job losses roughly in half. Mexico's job impacts differ little

across the scenarios because almost all of the impact comes from the lapse of the bilateral free trade relationship with the United States.

It is important to emphasize that these estimates are for the new equilibrium when labour markets have cleared – i.e., over time there is no involuntary unemployment generated by the NAFTA shocks. The adjustment period could feature larger unemployment totals and these might indeed persist for more than the five years assumed here for equilibrium to be re-established. Notably, Ciuriak (2010), reviewing the impacts of the original CUSFTA/NAFTA on Canada's labour markets found that Canada did not return to full employment for a decade after the initial shock, and the restoration of the discouraged worker effect on labour participation of women took the better part of a second decade. Accordingly, for a generation, there was an effectively permanent loss of jobs.

Sectoral Impacts

This section reviews the sectoral impacts. Details tables can be found in **online Technical Paper**. We focus on the NAFTA lapsing, which generates the largest sectoral shocks. For Canada, the CUSFTA holds and CMFTA scenarios generate small sectoral gains. For the United States, the sectoral impacts are attenuated significantly if CUSFTA holds. For Mexico, the impacts are little changed from the NAFTA lapsing scenario.

For **Canada**, NAFTA lapsing means billion-dollar hits to exports of a number of sectors. The hardest hit of these, however, is business services, which not only suffers a drop of $2.7 billion in exports to NAFTA partners but also has to contend with reduced domestic sales due both to intermediate inputs in exports and to reduced domestic sales due to income effects. All in all, business services see a decline in total sales of $7.2 billion.

The chemicals, rubber and plastics complex and automotive sectors experience large declines in bilateral exports to NAFTA partners, which are partly compensated by re-orientation towards third markets and to the domestic market, in part filling gaps resulting from declining bilateral imports.

Machinery and equipment, food products, and textiles and clothing suffer lesser but still significant export declines and similarly pick up some domestic market share from imports as Canadian tariffs go up.

Sectors that are little affected by export declines but still experience significant negative impacts from the income effects of NAFTA lapsing are "other services", which include public services, trade, and construction. Financial services and communications also experience relatively large drops in total sales, primarily stemming from declines in domestic demand.

The most affected agricultural sector is beef. Exports drop by more than $500 million (although this might vary depending on how Canadian exporters fare under US MFN beef quotas). While Canadian beef producers would capture some of the Canadian domestic market share left by declining NAFTA imports, the modelling results suggest that total sales would still fall appreciably. "Other agricultural products", which include a variety of other crops, fare similarly, with the decline in domestic demand compounding an overall decline in exports. Dairy also experiences a fairly significant decline in sales, entirely due to lowerdomestic demand.

For the **United States**, we consider first the sectors that benefit most from a decline in import competition – this being the stated objective of countering unfair trade within NAFTA. By far and away, the greatest decline in NAFTA-sourced imports would be in the automotive sector. The modelling results suggest that US imports would decline by over $22 billion. However, despite picking up considerable market share in the domestic market, an increase of over $7.7 billion, the reduction of exports to NAFTA parties and the overall negative impact on domestic demand results in the auto industry experiencing the greatest decline in total sales of these industries.

The chemical, rubber and plastics complex gets the benefit of protection, with a decline in NAFTA-sourced imports of $8.1 billion; however, this is more than offset by a decline in bilateral exports to NAFTA partners of over $10 billion. Taking into account some pick-up in market share by third parties (e.g., the EU and China), notwithstanding an increase in domestic sales, the sector comes out with a decline in total sales of over $5.9 billion

With variations in the details, similar stories emerge for other import-competing industries like textiles and apparel, metal products and food products.

Other sectors, although not much affected by trade measures, lose sales due to a decline in demand. For example, fossil fuels languish because of general weakness in the North American economy.

A number of sectors that do not have a problem with import competition get sideswiped by the NAFTA lapsing due to indirect domestic income effects. Income effects drive reductions on spending on public services by over $25 billion. Other sectors experiencing significant declines in total sales include trade ($12.7 billion), construction ($8.7 billion), and financial services ($8.4 billion).

Business services, which see a decline in import competition from NAFTA partners, see any benefit from that quarter erased by a steeper decline in domestic sales. The overall result is a $4.6 billion decline in total sales.

Wood products, which benefit from anti-dumping and countervailing duties (not modelled in these scenarios), lose export markets and suffer a decline in domestic demand. This sector's total sales fall by $3.7 billion.

Turning to agricultural sectors, US agricultural export interests are hit relatively hard with billion-dollar export declines in pork and poultry, beef and dairy. While there is some modest offset from decreased imports from NAFTA partners, the combination of weaker exports and weaker domestic demand results in still larger declines in total sales. Only the fruit and vegetables sector parlays a decline in imports of $1.3 billion into a gain, albeit a modest one, of $30 million in total sales. The heavily protected sugar sector sees a decline in total sales of $145 million.

Automotive, machinery and equipment, and textiles and apparel absorb the largest export reductions; none of these sectors makes up lost ground by picking up market share at the expense of NAFTA imports, and experience significant declines in total sales. The automotive sector would likely see the complete loss of the light truck assembly business given the 25 percent tariff that would apply upon NAFTA lapsing. Only the chemicals, rubber and plastic sector is able to parlay a steep decline in imports into improved domestic sales and come out ahead on total sales.

Apart from automotive, the sectors suffering the largest declines are predominantly services industries that suffer a drop in sales because of declining domestic demand driven by falling incomes. Public services, construction, and trade lead the decline.

Mexico accepted major import penetration in its highly protected agricultural sector to get the NAFTA in the first place. NAFTA lapsing claws back domestic markets for Mexican agricultural producers. The largest import declines are in pork and poultry, dairy, beef, and cereal grains. All four sectors see significant boosts to total sales by Mexico's domestic producers due to declining imports and rising domestic sales. The only Mexican agricultural sector that suffers a loss in total sales due to declining exports is the export-oriented fruit and vegetables sector.

Primary sectors (forestry, fishing and mineral products) are little affected by NAFTA lapsing in any of the three NAFTA parties as tariffs in these sectors are generally very low. We note that this analysis does not take into account the impact of US anti-dumping and countervailing duties on softwood lumber from Canada or on other product groups from NAFTA partners.

Discussion and Conclusions

This study provides some quantitative estimates of the implications of fundamental changes in North American trade in the event that the United States withdraws from NAFTA. We report three scenarios – NAFTA lapsing, NAFTA lapsing but CUSFTA holding, and NAFTA lapsing but CUSFTA holding and a continuation of Canada-Mexico free trade under a separate agreement with NAFTA terms (CMFTA).

The simulations take explicit account of shocks to tariffs, services NTBs and investment NTBs. We do not explicitly take into account the fact that NAFTA preferences are not 100 percent utilized or the heightened uncertainty about access to US markets generated both by the lapsing of the NAFTA commitments and by the rhetoric of protectionism that colours the negotiations. In our view, these omissions work in opposite directions, the former implying an overstatement of the tariff impacts, the latter implying an understatement. In our view, the uncertainty factor likely dominates and the net effect is an expected understatement of the scale of the negative effects of new border protection. We do not factor into the analysis impacts on trade facilitation as regards border measures and government procurement, in good measure because WTO rules under the Trade Facilitation Agreement supersede the older NAFTA measures; and because regulatory cooperation currently goes on amongst the parties through mechanisms outside of the NAFTA framework and would not cease simply because the NAFTA lapsed.

The simulations estimate the impact of the policy shocks "once the dust has settled" and do not shed light on the path to that end-point. That path can feature quite disruptive developments, so there might be quite a lot of dust to settle. With regard to investment in particular, in a context where FDI tends to "crowd out" domestic investment, the withdrawal of FDI implies a "crowding in" of domestic investment. In the fullness of time, this may indeed occur as economic models expect. However, the impact on local economies of factories packing up and leaving, or of particular markets drying up, is not revealed or even hinted at in these nation-wide, long-term results.

With these caveats, we draw the following conclusions about the impact of NAFTA lapsing and trade arrangements in North America partially or completely reverting to WTO rules.

Canada is the least affected of the three parties. In good measure this reflects the fact that about three-quarters of Canada's applied MFN tariffs are zero and the most protected areas – the supply-managed dairy and poultry sectors – are not subject to NAFTA in the first place. Significant sectoral impacts from loss of export markets are therefore limited to a handful of sectors, most notably the automotive and chemicals-rubber-plastics sectors. If the CUSFTA holds, Canada stands to make some gains in the United States by diverting trade away from Mexico. If Canada and Mexico continue free trade under a CMFTA, Canada makes gains in the Mexican market, largely at the US expense.

The scale of the impact of NAFTA lapsing is considerably smaller than estimates of the gain from CUSFTA and NAFTA when these agreements were originally signed. This asymmetry is plausible: since the time the agreements were originally signed, the benefits of North America preferences have been substantially eroded by multilateral, regional and unilateral liberalization. Moreover, progress at the WTO and through the work of the World Customs Organization has caught up with and indeed superseded the NAFTA in border trade facilitation. Similarly, the WTO Government Procurement Agreement (GPA) and WTO dispute settlement understanding (DSU) now provide multilateral regimes that make NAFTA's mechanisms largely redundant or strongly complement them.

Simply put, NAFTA preferences now have much less leverage over the direction and depth of trade between Canada and the United States than the CUSFTA had a quarter of a century ago.

The **United States** is exposed to trade with Canada and with Mexico in roughly equal measure: dropping free trade with either is damaging in roughly equal measure. For the US economy, the impacts would not be particularly large, but they are concentrated in two key areas: the automotive sector and agricultural exports to the Mexican market. Large, concentrated negative impacts represent something of a political "poison pill" – as the Canadian experience with attempts at dairy sector reform demonstrates. The sharp and narrowly felt pain in the US automotive and farm sectors means that this battle will be fought within the United States, between US stakeholders, Congress and the White House, as much if not more than between Canada and Mexico and the Trump Administration. Indeed, awareness of this reality may even make the Trump Administration's threat to terminate NAFTA look like a bluff.

The United States does not achieve its stated goal of balancing NAFTA trade by walking away from the deal – its exports to NAFTA partners go down by about the same amount as its imports from NAFTA partners, and indeed by a little more. Ironically, the United States does stand to improve its external trade balance by withdrawing from NAFTA – however, this is not because of improved trade balances with its NAFTA partners, but because the negative impact on its economy drives down overall imports from all sources compared to exports. Weak economies tend to improve trade balances, and essentially that is how the NAFTA lapsing scenario suggests the Trump Administration would achieve its stated bottom line objective.

Mexico is by far the most exposed economy to NAFTA lapsing. Mexico put its economic eggs in the NAFTA basket and thus faces outsized risks from losing its gamble. That being said, the Mexican agricultural sector, which absorbed deep market share cuts from NAFTA, would come out ahead if NAFTA lapses, easing Mexico's internal adjustment challenges. Further, apart from the automotive sector, Mexico's most affected sectors are all domestically oriented services sectors. A fiscal stimulus program aimed at domestic demand would be an available tool for Mexico to soften the blow there, without reaching for trade measures.

The automotive sector, and particularly light truck assembly, would be very hard hit in Mexico. Light truck assembly would likely immediately pack up and move into the United States to avoid the 25 percent tariff, if NAFTA lapses. This would cause dislocation to auto firms, but they could scarcely compete in the US market from a Mexican base under those tariff conditions, and so would have to bite the bullet and relocate to the United States. Mexico's Plan B would have to focus on re-orienting its auto exports to third markets, including possibly to the TPP region and south into Latin and South America.

While the CMFTA represents only a small offset for Mexico to the NAFTA lapsing, it would be part of Mexico's Plan B and would likely involve no additional negotiating costs beyond what has already been expended in reviving the CPTPP by the eleven remaining parties. For Canada-Mexico trade, the CPTPP could be the CMFTA.

There are numerous important caveats to any quantitative simulation exercise such as undertaken in this study.

First, the scenarios presented are illustrative of the size of the shock to NAFTA trade in the long run after all the dust has settled and do not take into account adjustment costs, which would like be not inconsiderable.

Second, the dynamics of separation and divorce are likely to be different than the dynamics of deepening ties. In the deepening ties scenario, there is the positive prospect of still greater improvement in the future to amplify positive impacts on trade through "animal spirits" effects; the estimates are more likely to understate than overstate the (positive) impacts. In the separation scenario, there are the hard feelings associated with defection

and the uncertainty about what comes next. The risks would be that the estimates understate the (negative) impacts.

Third, the disruption to NAFTA trade could be greater than reported here since the impact of inserted tariffs into cross-border value chains cannot be fully taken into account.. Thus, the simulations might not not capture fully the buildup of tariffs when intermediate goods cross the border several times. As well, the simulations might not capture corporate decisions to restructure production arrangements by consolidating marginal activities behind one border or the other, causing cascading changes through supply relationships. Finally, where tariffs are high, such as the 25 percent MFN tariff on light trucks into the United States, assembly in Mexico for sale to the United States would likely cease; the modelling results likely understate the trade impact here. We anticipate, accordingly, that cross-border value chains would unravel to some extent, creating greater trade destruction than can be captured by models.

Fourth, and more subtly, the scenarios do not take into account the emergence of new frictions to goods trade. For example, a follow-on reaction to the lapsing of NAFTA between the United States and Mexico would likely make the border region less attractive on both side resulting in the relocation of some productive resources within Mexico and the United States away from the border. Thus, the two countries would grow further apart in a physical sense as the centres of economic gravity of each shift away from each other. Distance translates into cost and so US-Mexico trade would grow more expensive.

Fifth, labour market effects such as skill mismatches with the lapsing of NAFTA provisions empowering labour mobility could have negative productivity and production cost impacts on all the parties. While the database for the model distinguishes between skilled and unskilled labour, the full negative effects of heightened skill mismatching from reduced cross-border movement of labour cannot be captured.

Finally, it is important to observe that in areas where the NAFTA required parties to amend domestic legislative and regulatory frameworks – as in the adoption of intellectual property laws or signing onto international conventions – the lapsing of NAFTA would not automatically result in reversion to the state of affairs pre-NAFTA. The legacy of NAFTA would live on in these measures. This is a second general reason why the effects of NAFTA being adopted and NAFTA lapsing are asymmetric, albeit with positive results in this case.

Accordingly, these scenarios represent a starting point and provide a quantitative frame of reference for discussing the implications of NAFTA lapsing; they do not purport to be comprehensive bottom lines on these impacts.

While the quantitative estimates presented in this study likely understate the actual impacts and are incomplete because they are not able to take into account a number of important features of the NAFTA, they serve to bring out a critical feature of the current state of affairs: as NAFTA preferences have eroded over time, NAFTA's effective impact on trade has become sectorally and regionally concentrated. This increases the political difficulty of change and may ironically work to ensure the NAFTA's survival.

REFERENCES

Balistreri, Edward J., and Thomas F. Rutherford. 2013. "Computing general equilibrium theories of monopolistic competition and heterogeneous firms." In Dixon, Peter B. and Dale W. Jorgenson (eds.) Handbook of Computable General Equilibrium Modeling. Amsterdam: Elsevier, 1513-1570.

Bown, Chad. 2017a. "Steel, Aluminum, Lumber, Solar: Trump's Stealth Trade Protection" Policy Brief 17-21, Peterson Institute for International Economics, June 2017.

Bown, Chad. 2017b. "Rogue 301: Trump to Dust Off another Outdated US Trade Law?" Trade and Investment Policy Watch, Peterson Institute for International Economics, 3 August 2017.

Cernat, Lucian and Zornitsa Kutlina-Dimitrova. 2015. "International Public Procurement: From Scant Facts to Hard Data," European Commission DG Trade Chief Economist Note 1.

Ciuriak, Dan, and Dmitry Lysenko. 2016. "Quantifying Services-Trade Liberalization: The Impact of Binding Commitments," Better in than Out? Canada and the Trans-Pacific Partnership. Toronto: C.D. Howe Institute.

Ciuriak, Dan, and Jingliang Xiao. 2016. "Calibrating Wage-Productivity Responses in CGE Model Simulations of Trade Policy Impacts," Ciuriak Consulting Discussion Paper, 14 September 2016.

Ciuriak, Dan, and Shenjie Chen. 2008. "Preliminary Assessment of the Economic Impacts of a Canada-Korea Free Trade Agreement." In Ciuriak, Dan (ed.) Trade Policy Research 2007. Ottawa: Foreign Affairs and International Trade Canada, 187-234.

Ciuriak, Dan, Ali Dadkhah, and Jingliang Xiao. 2017. "Brexit Trade Impacts: Alternative Scenarios," GTAP Resource #5252, presented at the GTAP Annual Conference, West Lafayette, 6-8 June, 2017.

Curtis, John M. 2002. "The Role of Contextual Factors in the Launching of Trade Rounds," Chapter 2 in John M. Curtis and Dan Ciuriak (eds) Trade Policy Research 2002. Ottawa: Foreign Affairs and International Trade Canada: 33-70.

Dixon, Peter. B., Michael Jerie, and Maureen T. Rimmer. 2013. "Deriving the Armington, Krugman and Melitz models of trade," Paper presented at the 23rd Pacific Conference of the Regional Science Association International (RSAI). Bandung, Indonesia. July.

Evers, Michiel, Ruud De Mooij, and Daniel Van Vuuren. 2008. "The Wage Elasticity of Labour Supply: A Synthesis of Empirical Estimates," De Economist 156(1), 25-43.

Fontagné Lionel, Cristina Mitaritonna, and José Signoretet. 2016. "Estimated Tariff Equivalents of Services NTMs," CEPII Working Paper No 2016-20 – August.

Francois, Joseph, and Laura Baughman. 2005. Impact of imports from China on U.S. Employment. Washington, D.C.: The National Retail Federation.

Gilbert, John P. 2004. "GTAP Model Analysis: Simulating the Effect of a Korea-U.S. FTA Using Computable General Equilibrium Techniques." In Choi, Inbom and Jeffrey J. Schott (eds.) Free Trade Between Korea and the United States? Washington, D.C.: Institute for International Economics, Appendix B, 89-118.

Helpman, Elhanan, Marc J. Melitz, and Stephen R. Yeaple. 2004. "Export Versus FDI with Heterogeneous Firms," American Economic Review 94(1), March: 300-316.

Hertel, Thomas (ed.). 1997. Global Trade Analysis: Modeling and Applications. Cambridge, UK: Cambridge University Press.

Hertel, Thomas, David Hummels, Maros Ivanic, and Roman Keeney. 2003. "How Confident Can We Be in CGE-Based Assessments of Free Trade Agreements?" GTAP Working Paper 26.

International Monetary Fund (IMF). April 2017. World Economic Outlook Database. <http://www.imf.org/external/pubs/ft/weo/2017/01/weodata/index.aspx> (accessed June 1, 2017).

Itakura, Ken, and Kazuhiko Oyamada. 2013. "Incorporating firm heterogeneity into the GTAP Model," Paper presented at the 16th Annual Conference on Global Economic Analysis. Shanghai, China. June.

King, Elizabeth K. 1991. "The Omnibus Trade Bill of 1988: 'Super 301' And Its Effects on the Multilateral Trade System under the GATT," University of Pennsylvania Journal of International Law 12(2): 245-273.

Meager, Nigel, and Stefan Speckesser. 2011. "Wages, productivity and employment: A review of theory and international data," European Employment Observatory, Thematic expert ad-hoc paper, May 2011.

Melitz, Marc J. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." Econometrica 71(6): 1695-1725.

Oyamada, Kazuhiko. 2013. "Parameterization of Applied General Equilibrium Models with Flexible Trade Specifications Based on the Armington, Krugman, and Melitz Models," Institute of Developing Economies Discussion Paper 380.

Roson, Roberto, and Kazuhiko Oyamada. 2014. "Introducing Melitz-Style Firm Heterogeneity in CGE Models: Technical Aspects and Implications," Department of Economics, Ca' Foscari, University of Venice Working Paper 04/WP/2014.

Roson, Roberto. 2006. "Introducing Imperfect Competition in CGE Models: Technical Aspects and Implications," Fondazione Eni Enrico Mattei, Nota Di Lavoro 3.2006.

The Economist. 2002. "Innovation's golden goose," The Economist, 12 December 2002.

USITC. 2016. "Trans-Pacific Partnership Agreement: Likely Impact on the U.S. Economy and on Specific Industry Sectors," United States International Trade Commission USITC Report 4607.

WTO. 2017. World Tariff Profiles 2017. World Trade Organization, International Trade Centre, UNCTAD.

Zhai, Fan. 2008. "Armington meets Melitz: Introducing firm heterogeneity in a global CGE model of trade," Journal of Economic Integration 23(3), 575-604.

NOTES:

Recent C.D. Howe Institute Publications

November 2017	Dachis, Benjamin, William B.P. Robson, and Farah Omran. *Fuzzy Finances: Grading the Financial Reports of Canada's Municipalities.* C.D. Howe Institute Commentary 496.
November 2017	Mahboubi, Parisa. "Talkin'Bout My Generation: More Educated but Less Skilled Canadians." C.D. Howe Institute E-Brief.
November 2017	Robson, William B.P. *Rethinking Limits on Tax-Deferred Retirement Savings in Canada.* C.D. Howe Institute Commentary 495.
November 2017	Found, Adam. "Flying Below the Radar: The Harmful Impact of Ontario's Business Property Tax." C.D. Howe Institute E-Brief.
October 2017	Cross, Philip. *Revisions to Economic Statistics and Their Impact on Policymaking.* C.D. Howe Institute Working Paper.
October 2017	Gordon, Daniel V., and Jean-François Wen. *A Question of Fairness: Time to Reconsider Income-Averaging Provisions.* C.D. Howe Institute Commentary 494.
October 2017	Laurin, Alexandre. *Off Target: Assessing the Fairness of Ottawa's Proposed Tax Reforms for "Passive" Investments in CCPCs.* C.D. Howe Institute Commentary 493.
September 2017	Dachis, Benjamin, Blake Shaffer, and Vincent Thivierge. *All's Well that Ends Well: Addressing End-of-Life Liabilities for Oil and Gas Wells.* C.D. Howe Institute Commentary 492.
September 2017	Marchand, Joseph. *Thinking about Minimum Wage Increases in Alberta: Theoretically, Empirically, and Regionally.* C.D. Howe Institute Commentary 491.
September 2017	Le Pan, Nicholas. *Opportunities for Better Systemic Risk Management in Canada.* C.D. Howe Institute Commentary 490.
September 2017	Naglie, Harvey. *Not Ready for Prime Time: Canada's Proposed New Securities Regulator.* C.D. Howe Institute Commentary 489.
September 2017	Aptowitzer, Adam "No Need to Reinvent the Wheel: Promoting Donations of Private Company Shares and Real Estate." C.D. Howe Institute E-Brief.
September 2017	Mahboubi, Parisa, and Colin Busby. "Closing the Divide: Progress and Challenges in Adult Skills Development among Indigenous Peoples." C.D. Howe Institute E-Brief.

Support the Institute

For more information on supporting the C.D. Howe Institute's vital policy work, through charitable giving or membership, please go to www.cdhowe.org or call 416-865-1904. Learn more about the Institute's activities and how to make a donation at the same time. You will receive a tax receipt for your gift.

A Reputation for Independent, Nonpartisan Research

The C.D. Howe Institute's reputation for independent, reasoned and relevant public policy research of the highest quality is its chief asset, and underpins the credibility and effectiveness of its work. Independence and nonpartisanship are core Institute values that inform its approach to research, guide the actions of its professional staff and limit the types of financial contributions that the Institute will accept.

For our full Independence and Nonpartisanship Policy go to www.cdhowe.org.

C.D. HOWE
INSTITUTE

67 Yonge Street, Suite 300,
Toronto, Ontario
M5E 1J8

Canadian Publication Mail Sales
Product Agreement #40008848