How U.S. Agriculture Will Fare Under the USMCA and Retaliatory Tariffs

By

Maksym Chepeliev
Wallace E. Tyner
Dominique van der Mensbrugghe

GTAP Working Paper No. 84
October 2018

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Commissioned by Farm Foundation, this analysis was done by
Maksym Chepeliev, Wallace E. Tyner and Dominique van der Mensbrugghe[1]
Department of Agricultural Economics, Purdue University
October 2018

Executive Summary

A hallmark of the Trump Administration has been to reverse the post-World War II consensus on lowering of trade barriers and a commitment towards multilateral free trade, towards a more protectionist and perhaps mercantilist position vis-à-vis trade policy. One of the Administration's first actions in this regard was the decision to leave the Trans-Pacific Partnership (TPP) agreement, followed thereafter by raising tariffs on steel and aluminum imports. President Trump left no doubt where he stood on the North American Free Trade Agreement (NAFTA), which he often stated was the "worst trade deal maybe ever signed anywhere." The administration's actions on trade are likely to have significant implications for U.S. farmers as these actions target three of the largest markets for U.S. agricultural exports—Canada, China and Mexico—accounting for some 44% of U.S. agricultural exports representing an average of $63 billion from 2013 to 2015.

The recently signed, though yet to be ratified, United States-Mexico-Canada Agreement (USMCA) should bring a sigh of relief to U.S. farmers. It largely maintains the relatively free market access across the three countries, particularly in agriculture. It improves market access for U.S. dairy and poultry exports towards Canada, providing a modest positive export bump in these sectors. However, the new agreement, when implemented, is occurring in a new and volatile trade policy environment that is creating headwind for U.S. farmers. The steel and aluminum tariffs that have targeted most of the U.S. trading partners including Canada, China and Mexico, have been met with retaliatory measures that extend well beyond these two metals.

[1] Corresponding email: vandermd@purdue.edu.

Canada and Mexico have targeted a broad number of U.S. agricultural exports and China, notably, has increased its tariff on U.S. soybean exports by 25%.

The modest market access improvements in the USMCA will lead to an expansion of U.S. agricultural exports by $450 million, mostly in the dairy and poultry sectors. However, the retaliatory measures taken by Canada and Mexico, in reaction to the U.S. decision to raise tariffs on their exports of steel and aluminum, will cause U.S. agricultural exports to decline by $1.8 billion, and by $1.9 billion to these key trading partners. In today's broader context of reactive trade retaliation from countries around the world, the United States would see a decline in agricultural exports of $7.9 billion, thus overwhelming the small positive gains from USMCA.

It could be worse. The USMCA may fail to be ratified. One plausible outcome of a failure to ratify the new agreement would be for the United States to withdraw from the original agreement, in which case all three countries could revert tariff rates to the so-called most favored nation (MFN) status, granted to all countries that are members of the World Trade Organization (WTO). MFN tariff levels would hit U.S. agricultural exports particularly hard. One study estimates that U.S. agricultural exports would decline by more than $9 billion, and lead to higher consumer prices for food.

Introduction

The purpose of this study is to estimate the impacts on U.S. agriculture of the recently agreed to United States-Mexico-Canada Agreement (USMCA).[2] The USMCA—at times referred to as NAFTA 2.0— represents a renovated North American Free Trade Agreement (NAFTA), which has been in place for nearly 25 years. This analysis was done from two different perspectives. The first used the NAFTA agreement as the base case and compares it with USMCA to estimate the impacts of changes introduced in USMCA related to the agricultural sector, assuming no other changes. Because there have been many other changes in trade policy (e.g., steel and aluminum tariffs and the retaliation against those U.S. imposed tariffs), the second perspective includes two other cases reflecting other tariff changes. The first of these cases includes just the agricultural tariffs imposed by Canada and Mexico in retaliation of the U.S. actions in steel and aluminum. The second case adds agricultural tariffs imposed by other countries such, as China.

In addition, a literature study was done of what the impacts would be if NAFTA were to be eliminated without replacement by USMCA. In other words, what would happen if USMCA were not ratified and the Administration were to withdraw from NAFTA? The focus was on two credible studies, but these two studies use different assumptions in their analysis. The studies essentially assume that in the absence of NAFTA, tariffs in all three countries would return to most favored nation (MFN) rates. The results from the literature demonstrate that the U.S. economy and U.S. agriculture would face significant losses if NAFTA were eliminated without replacement.

[2] The terms of the new agreement were formally signed on October 1, 2018, though the agreement requires ratification by all three member states.

This analysis uses the Global Trade Analysis Project (GTAP) model and the 2014 GTAP Data Base. The base case with NAFTA uses the standard database, since NAFTA was part of the tariff data set. "Shocks" were then created to represent the three cases mentioned above. This report provides the quantitative results in terms of changes in agricultural exports and economic well-being (welfare).

The rest of this paper contains the following sections:

- Description of overall changes introduced in USMCA;
- More detail on agricultural sector changes;
- The USMCA changes with the Canadian and Mexican retaliatory tariffs in agriculture added;
- The USMCA with all the tariff increases over the last 18 months including agricultural sector tariff changes introduced by other countries such as China;
- Report of the literature analyses of the impacts of NAFTA elimination.

The paper ends with some overall conclusions.

NAFTA: An historical perspective

To put the analysis in this paper in context, it is useful to examine the shares of agricultural imports and exports for Canada and Mexico. They have become more important destinations for U.S. agricultural exports with the development and growing implementation of NAFTA. Figure 1 shows the shares of major agricultural export destinations in 1995 and 2017. Over that time period the shares of U.S. agricultural exports destined for Canada and Mexico more than doubled – moving from 14.2% to 29.8%. The other large change was China moving from 4.7% to 13.7%, roughly tripling in share.

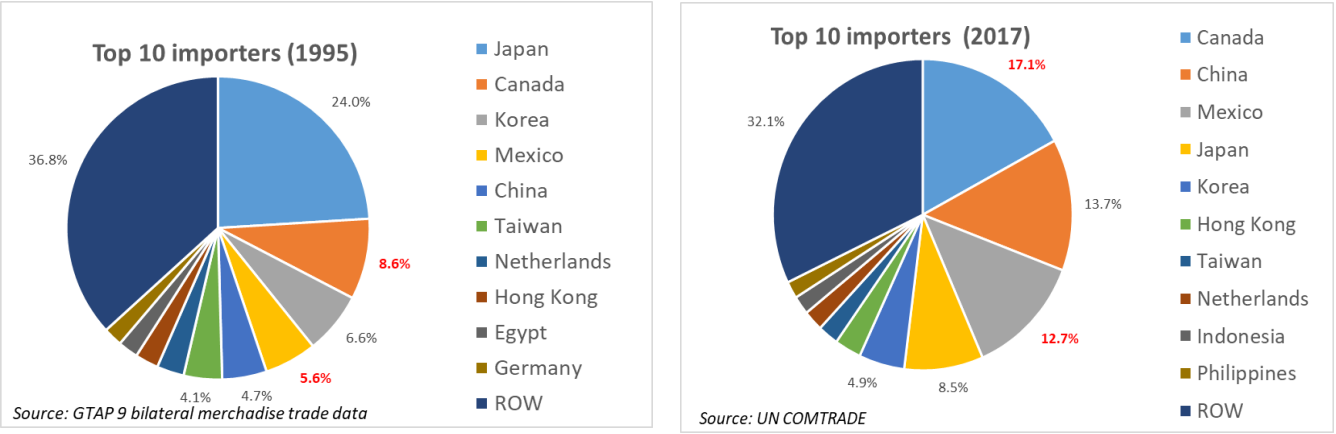

Figure 1. Destination shares for U.S. agricultural exports

Figure 2 shows the sources of U.S. agricultural imports. Canada and Mexico were already the largest sources of U.S. agricultural imports in 1995. Their combined shares grew a bit from 30%

to 35%. China was not an important agricultural exporter in 1995 but ranked third in 2017 with 5% of U.S. agricultural imports. It is interesting that while U.S. export shares to Canada and Mexico roughly doubled under NAFTA, U.S. import shares from those countries did not change much. The relative importance of Canada and Mexico in U.S. agricultural trade is important to provide context for the analysis of the impacts of trade agreement changes that follows.

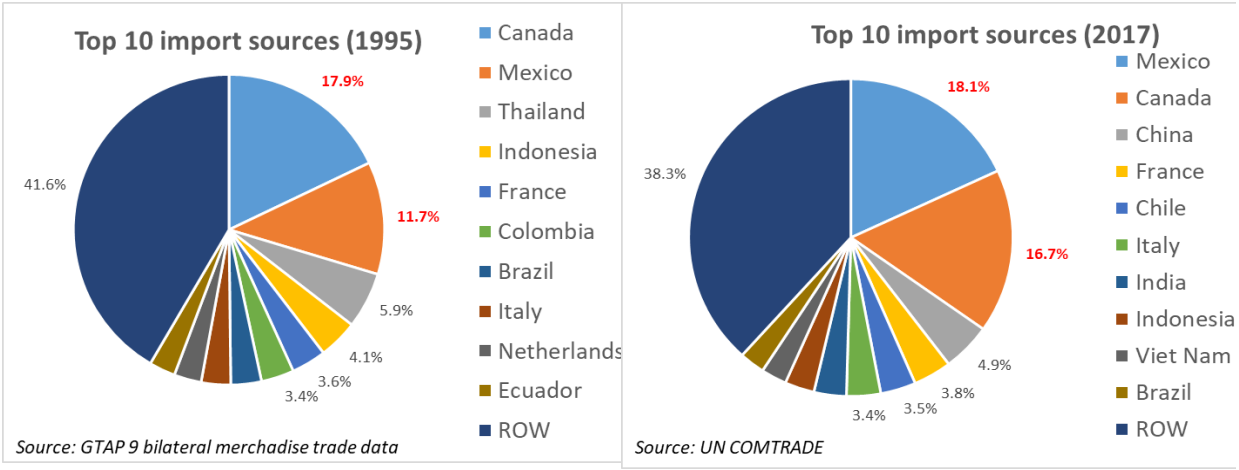

Figure 2. Source shares for U.S. agricultural imports

Key policy changes in the USMCA

The most significant impacts of the USMCA related to market access are concentrated in the automobile sector and a few agricultural sectors:

- Auto content for duty free access is raised to 75% from the existing 62.5%.
- 45% of the auto content must be produced in factories where workers are paid at least $16/hour.
- Expanded import quotas in Canada for dairy and poultry products.

Many of the other new provisions relative to the original NAFTA deal with so-called 'deeper' integration issues such as reducing the impacts of non-tariff barriers, for example transparency in import and export licensing. There are also additional provisions that deal with intellectual property and the digital economy. The accord extends copyrights to 70 years (up from 50) and the period that a pharmaceutical drug can be protected from generic competition. In terms of the digital economy, it prohibits duties on music and e-books, and protections for internet companies, such as exempting them from liability for content their users produce. The new agreement maintains the dispute settlement mechanism of the existing NAFTA accord. There is a new sunset clause. The accord will be reviewed every 6 years for a decision on whether to extend it or not. If the decision is not to extend the agreement, it would expire after 16 years, or ten

years after the review. The review process provides an opportunity to 'refresh' the agreement on a regular basis.

Implementation of the USMCA and Impacts on U.S. Agriculture

After a transition period at the beginning of the implementation of NAFTA, agricultural trade across the three NAFTA countries was largely liberalized and agricultural trade increased substantially. A few key exceptions included protection of Canada's heavily regulated dairy sector and to a lesser extent poultry. The dairy and poultry sectors were subject to tariff rate quotas (TRQs), which provided minimal access, i.e. an export quota, at a low tariff level. Higher exports, so-called out-of-quota exports, were faced with higher and typically prohibitive tariffs. In particular, in 2017 TRQs were applied to chicken and turkey products, eggs and egg products, milk, butter, cream, cheese, ice cream, etc. Some of the specified Canadian quotas were reserved for selected regions (e.g. cheese of all types other than imitation cheese – 66% allocated to EU; powdered buttermilk – reserved for New Zealand; concentrated/condensed milk/cream – reserved for Australia). The new agreement expands the quotas in these sectors. This analysis estimates that the dairy quota expands by more than 100% (see Table 1) from a low level, and the 'other meat products' sector by some 11.5%.[3] There are smaller expansions in two other sectors – 'other food products' and 'other animal products' – which includes live chickens and eggs. Our interpretation of the changes to agricultural protection under the USMCA is limited to these four sectors and only affect U.S. exports to Canada.

Table 1: Estimated increase in market access of U.S. agricultural exports to Canada under the USMCA

Sector code	Sector description	Increase in U.S. exports to Canada, percent
MIL	Dairy products	105.59
OFD	Food products n.e.s.	0.04
OAP	Animal products n.e.s.	2.69
OMT	Meat products n.e.s.	11.50

Note: N.E.S. means not elsewhere specified
Source: Authors' estimates based on USTA (2018a; 2018b)

The impact on total U.S. agricultural exports is relatively modest at around $454 million. Focusing on the target sectors, dairy exports increase by 5% and 'other meat' exports increase by 1.6%; to some extent this reflects the low share of U.S. exports in these sectors towards Canada (Figure 3). Export increases in the other two target sectors are much lower 0.4% and essentially 0% for 'other animal products' and 'other food products,' respectively. In value terms, the

[3] Poultry meat is a sub-sector in the 'other meat products' sector that also includes pork meat. Single quotes (e.g. 'meat products' or 'fruits and vegetables') are used to denote agricultural and food sectors in the GTAP Data Base classification.

largest export increases are also associated with dairy ($280 million) and 'other meat' ($210 million) sectors, while aggregate agricultural and food export to Canada is expected to increase by around $450 million (Figure 3).

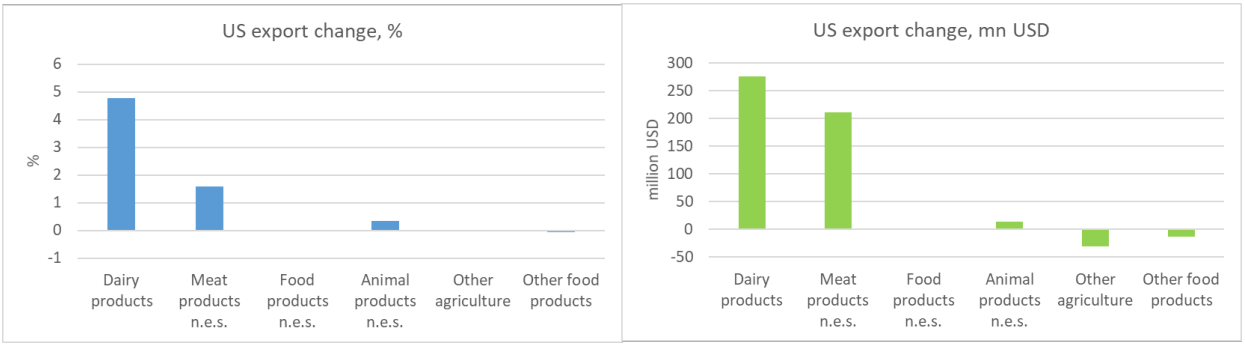

Figure 3: Estimated changes in the U.S. agricultural exports under the USMCA relative to NAFTA

The increase in U.S. exports in these sectors also generates increases in output, 0.28% in dairy (products) and 0.23% in raw milk production; 0.21% in 'other meat products;' 0.16% in 'other animal products'[4] and virtually no change in 'other food' output.

Implementation of the USMCA would also impact agricultural land prices. With increasing exports and growing demand for land, land prices grow by 0.26% in the 'raw milk' sector, while in other agricultural sectors the land price increase is a more modest 0.05% (Figure 4). In the case of 'dairy products', labor demand grows by 0.28%, which is equivalent to 590 workers.[5] The same absolute increase in employment is observed in the 'other meat' sector, where labor demand grows by 0.21%, while in 'other animal products' employment increases by 610 workers (+0.16%) (Figure 4).

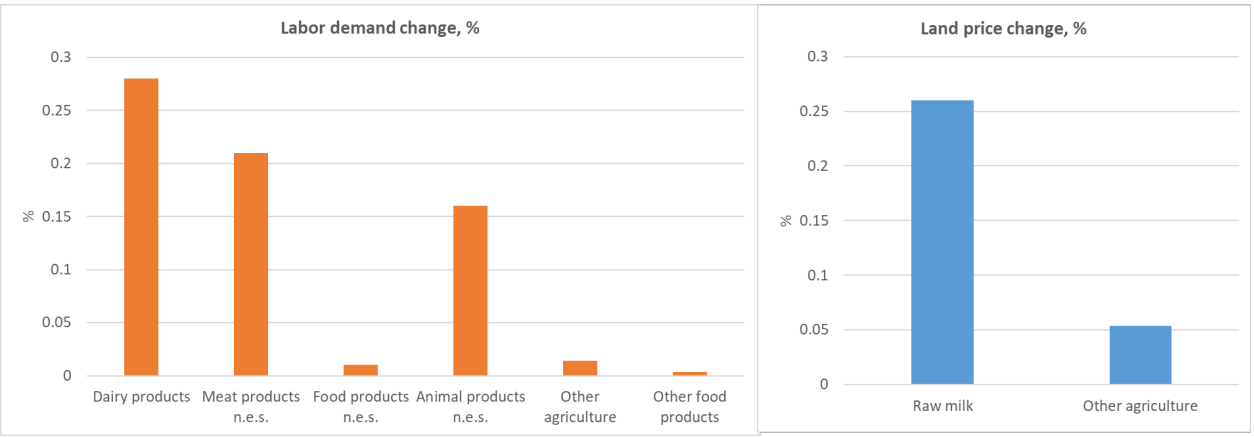

Figure 4: Estimated changes in U.S. agricultural land prices and labor demand under the USMCA

[4] Due to both upstream linkages and improved market access.

[5] Labor demand changes represent reallocation of workers between sectors (as aggregate labor demand at the national level is fixed). It is estimated by multiplying 2014 sectoral employment levels by percentage changes in labor demand.

On the macro level, implementation of the USMCA results in the slight welfare improvements in the United States of $188 million, while per capita income remains unchanged (+0.001%). There is no negligible impact on aggregate U.S. GDP. In summary, from the point of view of agricultural interests, the new USMCA has measurable impacts on the exports of dairy and poultry towards Canada, with modest impacts on farm income and labor demand.

The USMCA in a broader dynamic trade context

a. Retaliatory agricultural tariffs by Canada and Mexico

A hallmark of the Trump Administration has been sharp changes in U.S. trade policy—largely a reversal of the steady movement towards free trade since the end of World War II. The first of these trade policy actions targeted the steel and aluminum sectors in March 2018, justified on national security considerations, by imposing tariffs of 25% on steel and 10% on aluminum imports from most countries.[6] These trade actions were largely implemented uniformly across all trading partners—including Canada and Mexico. Along with many of the other U.S. trading partners, both NAFTA partners initiated retaliatory tariffs—targeting a broad set of traded goods, not only steel and aluminum. Table 2 summarizes the retaliatory tariffs imposed by Canada and Mexico on U.S. agricultural exports. They include 9.6% on 'other meat' products—largely poultry and pork meat, 6.7% on dairy products and 3.8% on vegetables and fruits by Mexico; 3.4% on sugar, 2.8% on 'other food products' and 1.65% on 'other meat' products by Canada.[7]

Table 2. Retaliatory agricultural import tariffs by Canada and Mexico, %

Sector code	Sector description	Canada	Mexico
V_F	Vegetables, fruit, nuts	0.00	3.76
OMT	Meat products n.e.s.	1.65	9.59
MIL	Dairy products	0.09	6.68
SGR	Sugar	3.38	0.00
OFD	Food products n.e.s.	2.82	3.08
B_T	Beverages and tobacco products	0.72	0.9

Source: Based on data provided in Li (2018)

Simulations in this analysis show that the retaliatory tariffs enacted by Canada and Mexico on their imports of U.S. agricultural and food products would reverse any potential gains that emerge from implementation of the USMCA, with exports losses for the sector at roughly $1.8 billion. In the most affected sectors, these retaliatory tariffs lead to a decline in U.S. exports of

[6] Through the invocation of Section 232 of the Trade Expansion Act of 1962.

[7] Retaliatory agricultural import tariffs are based on the aggregation of the HS 2012 6-digit tariffs using trade weights. Food and agricultural sectors reported in this study in most cases include more than one commodity at the HS 6-digit level of classification. Not all HS 6-digit level commodities within one sector face retaliatory tariffs, therefore the change in import tariffs at the sectoral level are lower than retaliatory tariffs for specific commodities. For example, Mexico has imposed a 20% tariff on U.S. exports of apples and cranberries. But these two goods are part of a large basket of goods denominated as 'vegetables and fruits' in the database and model and thus the average tariff increase on the broader basket is estimated to be 3.76%.

'other meat' products by 7%, dairy products by 1.2%, 'food products n.e.s.' by 2.6% and sugar by 1.3% (Figure 5). There is only a minor drop in the exports of fruits and vegetables. In value terms, the largest decreases in exports are observed in 'other meat' ($931 million) and 'food products n.e.s.' ($836 million). Exports in other sectors increase marginally as U.S. agriculture adjusts its production and exports towards the non-targeted sectors.

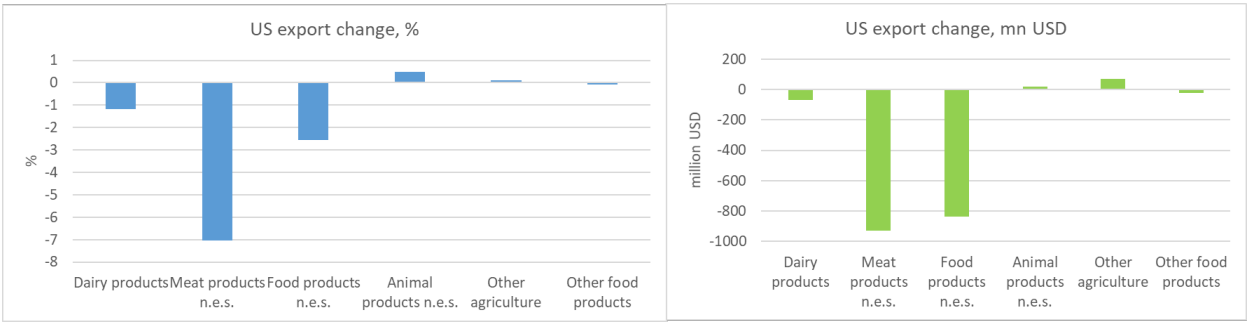

Figure 5: Estimated changes in the U.S. agricultural exports under the USMCA and retaliatory agricultural import tariffs by Canada and Mexico

The decrease in U.S. agricultural exports also generates a reduction in output – 0.08% in dairy products and 0.07% in raw milk production—the upstream activity. More significant reductions in output are observed in 'other meat products' (0.92%) and 'other animal products' (0.55%). Reductions in agricultural exports also result in weakening land demand, which would lower land prices—up to 0.15% in the case of 'raw milk' (Figure 6). In relative terms, the biggest reductions in labor demand are also observed in 'other meat' and 'other animal' (products)—0.9% and 0.55% respectively (Figure 6).

On aggregate, implementation of the USMCA together with the retaliatory tariffs imposed by Canada and Mexico results in the reallocation of 8,900 workers away from the agricultural and food sector, with the largest negative changes in the 'meat products n.e.s.' and 'food products n.e.s.' (2,600 workers within each sector) and 'other animal products' (2,100 workers).

At the macro level, implementation of the USMCA together with the retaliatory measures imposed by Canada and Mexico results in a reduction in U.S. economic well-being of $780 million, with per capita income reduction by 0.01%. There is almost no impact on U.S. GDP (-0.0001%).

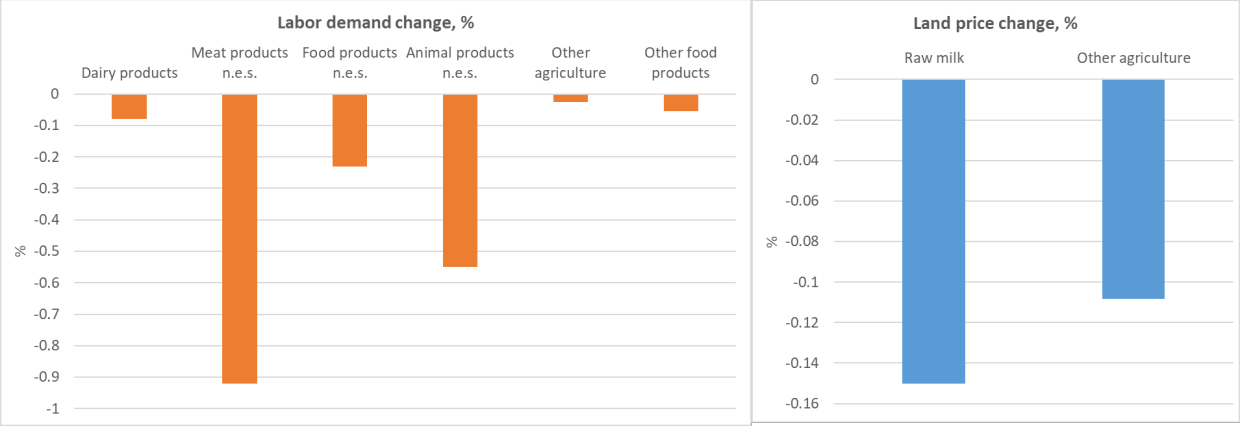

Figure 6: Estimated changes in the U.S. agricultural land prices and labor demand under the USMCA and retaliatory agricultural import tariffs by Canada and Mexico

b. USMCA in the context of broader trade retaliation

Implementation of the USMCA is taking place in the context of a much broader set of trade policies. In particular, steel and aluminum import tariffs of 25% and 10%, respectively, implemented by the Unites States in March 2018. (Earlier, in January 2018, the United States also imposed import tariffs on solar panels and washing machines, most of which are manufactured in China.) These actions launched a chain reaction of retaliatory trade measures by U.S. trading partners, including China and the European Union (EU). This includes multi-round tariff increases between China and the United States (Li, 2018). Relative to the positive impacts of the USMCA implementation on the U.S. agricultural sector, these trade frictions could have a dramatic negative effect on the U.S. agricultural industry. This subsection provides an assessment of the scenario that includes implementation of the USMCA on top of the recent tariff increases by the United States and the retaliatory tariff increases from other countries. These tariff increases begin with the steel and aluminum tariffs implemented by the United States on March 23, 2018, and include all the tariff changes up to the first round of U.S.-China tariff increases (Li, 2018). Tariff increases implemented in this scenario do not include an announced subsequent round of the U.S.-China import tariff increases scheduled for January 1, 2019.

The quantitative assessment shows that under this more dramatic scenario of bilateral tariff increases the U.S. agricultural sector takes a much more sizeable hit, as aggregate U.S. agricultural and food exports drop by around $8 billion. While ‘oil seed’ exports suffer the most (-21%) following implementation of the retaliatory policies by China, exports in other agricultural and food sectors also decline (Figure 7). ‘Meat products n.e.s.’ exports drop by 8.7%, ‘other animal products’ by 5.5%, ‘food products n.e.s.’ by 2.9% and ‘dairy products’ by 1.7%. Mixed changes are observed in the exports of other food and agricultural commodities, but on aggregate, they outweigh each other (Figure 7).

The decrease in U.S. agricultural exports also generates reductions in output. Output decreases by 1% in the case of 'other meat products' and 'other animal products', while the 'oil seeds' sector experiences a much larger drop of 13.5%.[8]

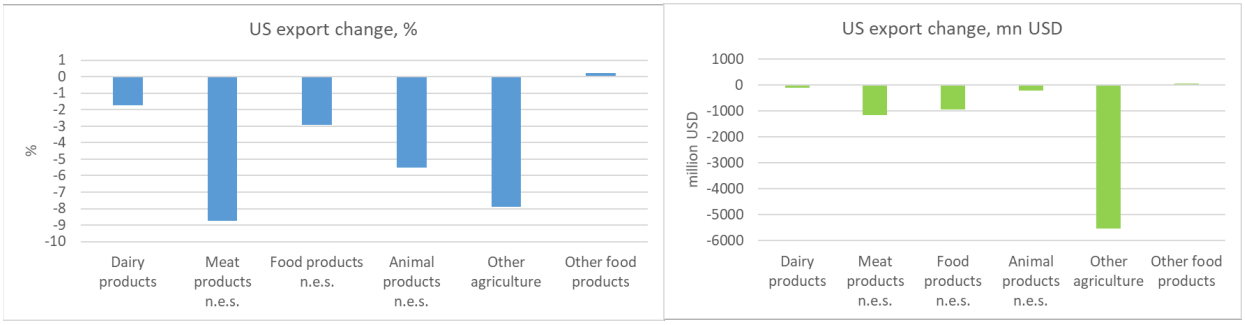

Figure 7: Estimated changes in U.S. agricultural exports in the context of broader trade retaliation

Falling exports and output reduces land and labor demand in the agricultural and food sectors. Land prices decrease by 7.1% to 7.5% in most agricultural sectors, declining by 17.8% in the case of 'oil seeds' (Figure 8). Other agriculture sectors with large land price reductions include 'plant-based fibers' (11.1%). On the labor side, implemented policies result in the reallocation of 45,000 workers away from the agricultural and food sector, most of this reallocation is coming from the 'oil seeds' sector, where labor demand falls by 14.6%. Smaller labor reallocation comes from 'other meat products' and 'other animal products', at 2,900 and 3,700 workers, respectively.

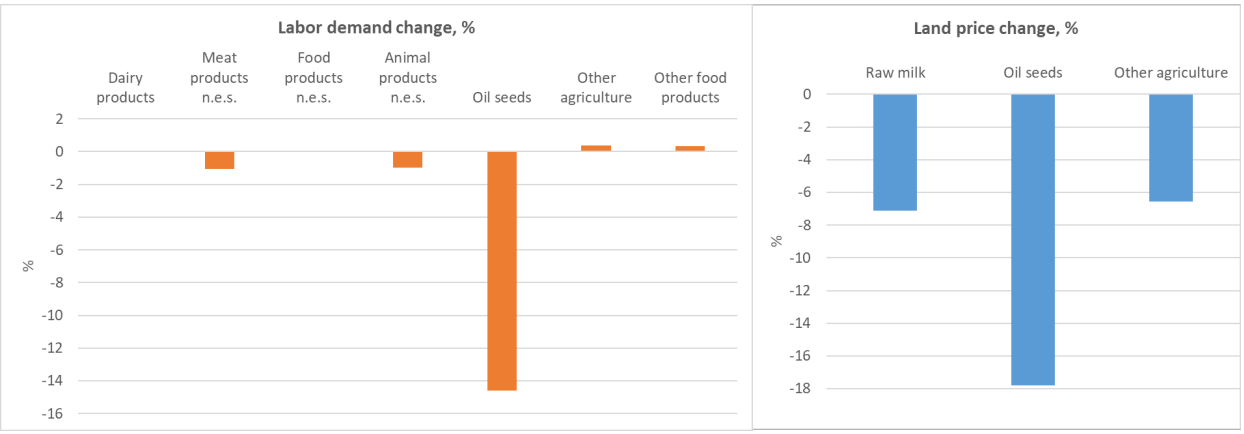

Figure 8: Estimated changes in the U.S. agricultural land prices and labor demand in the context of broader trade retaliations

At the macro level, implementation of the USMCA together with the recent broad set of retaliatory measures results in a welfare reduction of $27.8 billion and per capita income reduction of 0.18% as U.S. GDP declines by 0.08%.

[8] For a detailed analysis of the impacts of Chinese protectionist measures on U.S. soybeans, see Taheripour and Tyner (2018).

Abolition of NAFTA

This section summarizes studies that have assessed what could happen if the United States were to completely withdraw from NAFTA. While the eventual outcome is uncertain, one plausible outcome would be to replace the tariff-free access accorded under NAFTA and the subsequent USMCA with tariffs applied to countries with 'most-favored nation' (MFN) status.[9] In the case of autos, for example, this would increase tariffs to 2.5%—though the Trump Administration is assessing and could adjust MFN tariffs.

The two most relevant studies are Ciuriak et al. (2017) and Walmsley and Minor (2017). Developing the appropriate MFN tariff involves going back to the original data source for tariffs to assess the preferential tariff (i.e., the NAFTA tariff) compared to the MFN tariff at the detailed tariff line level.[10] Figures 9-12 highlight the potential tariff increases for Canada, Mexico and the United States for the 20 highest MFN rates within each of the countries.

In the case of the United States there are two charts—one each for Canada and Mexico—showing the MFN tariff levels for U.S. exports compared to the existing preferential tariffs (Figures 9 and 10). Under the existing NAFTA, U.S. exports to Canada face significant tariffs in dairy, 'other meat' and 'other livestock' products, poultry and pork, 'other processed foods', beverages and tobacco and vegetable oils. If Canada were to move to MFN rates, U.S. exporters would see some substantial increases in tariffs, with the exception of dairy and 'other meat' products that are governed by the quota regime that would likely not be impacted by elimination of NAFTA.[11] Of these top 20 goods (18 if the non-impacted sectors are excluded), eight are in agriculture and food. For example, beef products would go from a nuisance tariff of less than 1%, to more than 24%. In isolation, this could generate a reduction in U.S. beef product exports to Canada by some 50% to 100%.

U.S. exports to Mexico currently face very little headwinds under NAFTA—there are relatively low tariffs on 'other food' products, vegetables and fruits and forestry products. Mexico's MFN tariffs are much higher than those of Canada. Of the 21 commodities with the highest MFN rates, 13 are agricultural or food products. A number of the MFN rates are likely prohibitive, in that they would halt virtually all exports from the United States—including 'other meat' products with an MFN tariff of 71%, 'other food' products at 35%, dairy products at 31%, and vegetables and fruits at 28.5%, up from the current 5%.

The United States allows virtually free access to Canadian and Mexican exports, with a few key exceptions (Figures 11 and 12). Imports from Canada face tariffs on dairy of around 14% and smaller tariffs on 'other food' products and sugar. In the case of Mexican exports, the only

[9] MFN status is accorded to all trading partners that are members of the World Trade Organization (WTO).
[10] This is known as the harmonized system (HS) of product classification that is used for trade statistics. There are over 5,000 product lines at the standard HS6 level that are then aggregated to the GTAP level (42 product lines), typically aggregated using import value weights.
[11] According to the Ciuriak et al. interpretation.

significant tariff is on oilseeds. MFN tariffs would raise tariffs on a broad range of goods from Canada from around 1% up to 12% for textiles and wearing apparel. Many agricultural goods would see higher tariffs, including beef products (8.5%), vegetable oils (4%) and fruits and vegetables (4%). In the case of Mexican exports, the highest tariff increases would include dairy products (17%), beef (10%), vegetable oils (5%) and vegetables and fruits (4%).

The Ciuriak et al. study reports a drop in U.S. agricultural and food exports to Canada and Mexico of some $12 billion that is only partially compensated by $2.6 billion in a shift in exports to other countries, for a net loss in export revenues of $9.4 billion. Food imports also decline as tariffs are raised, but less than the decrease in exports, so that the United States would observe a deterioration in its food trade balance of nearly $5 billion.

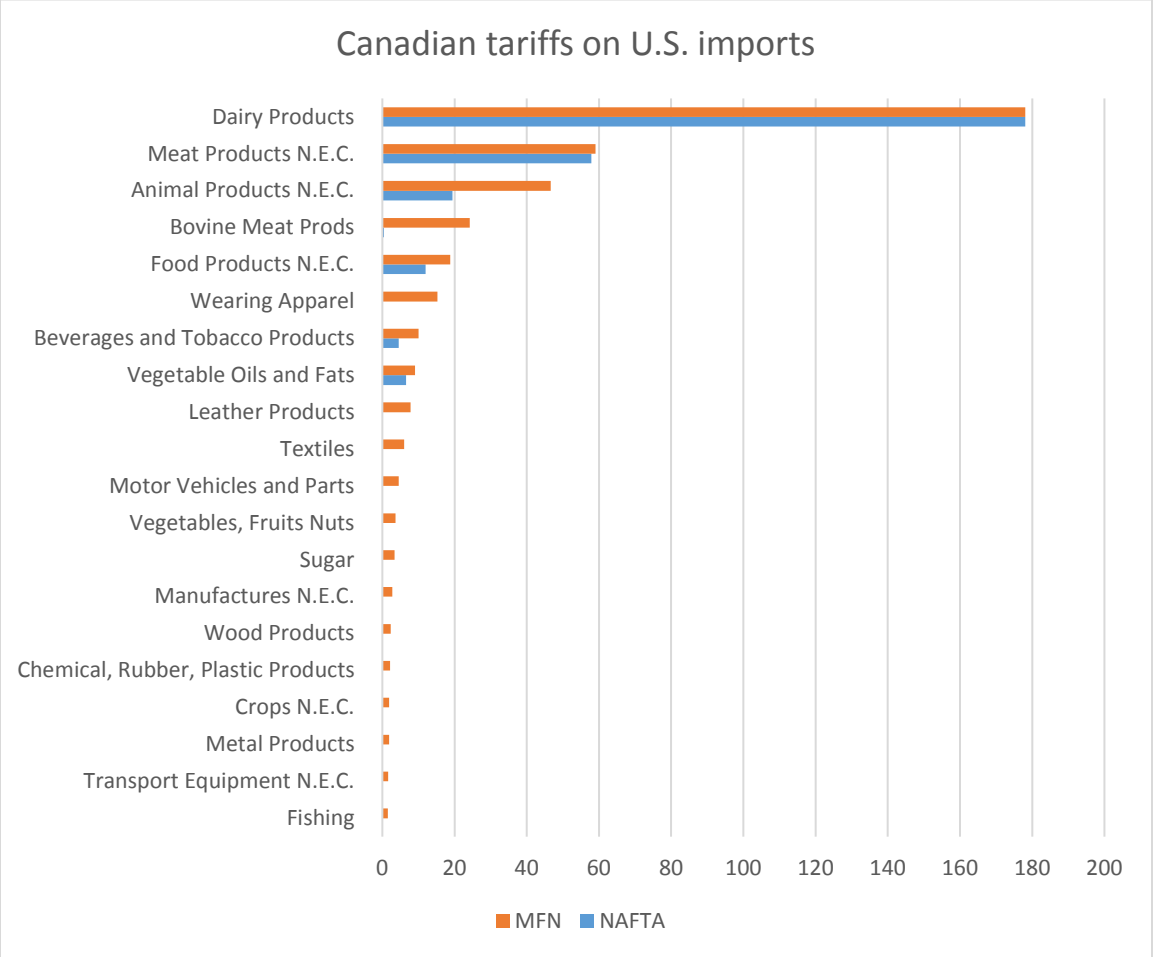

Figure 9. Canadian tariffs on U.S. imports
Source: Ciuriak et al. 2017

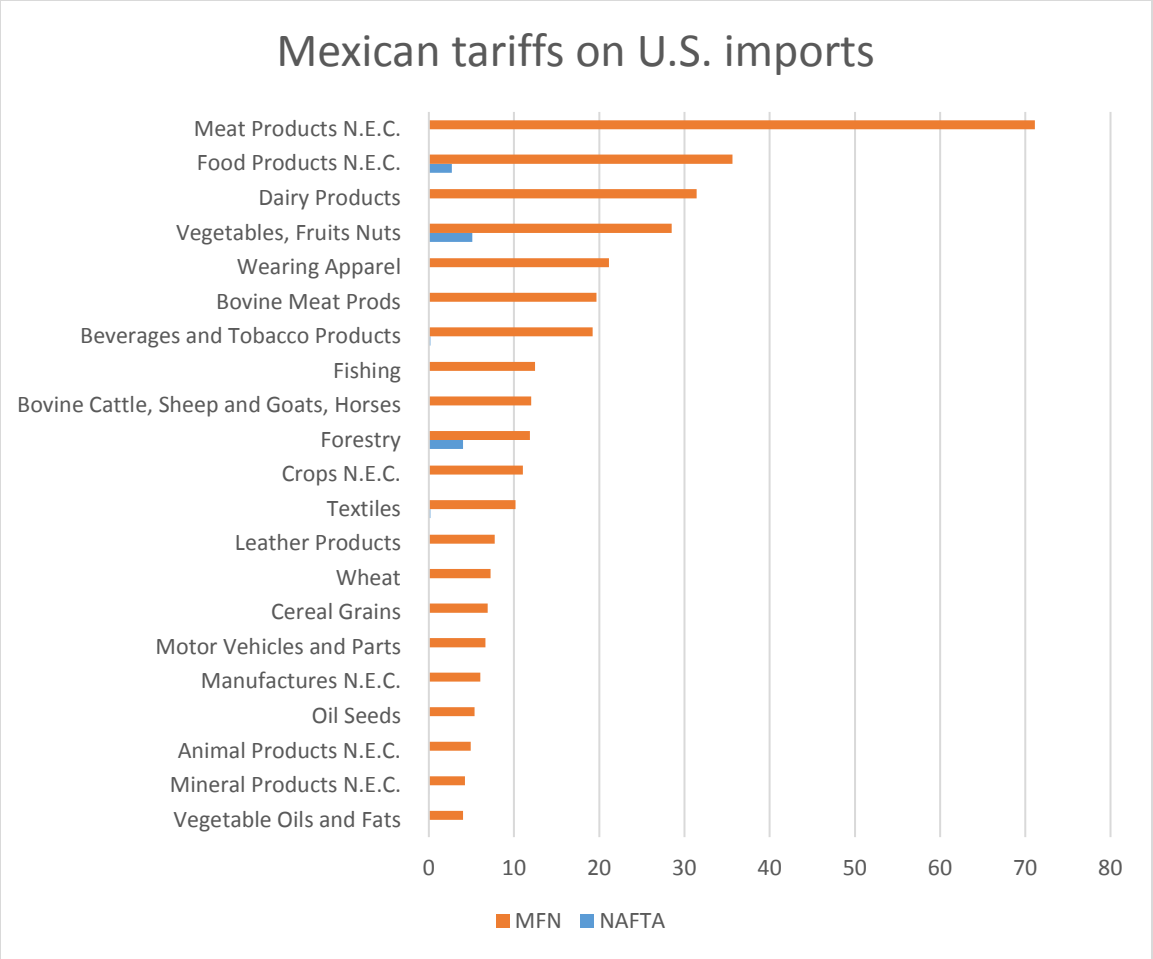

Figure 10. Mexican tariffs on U.S. imports
Source: Ciuriak et al. 2017

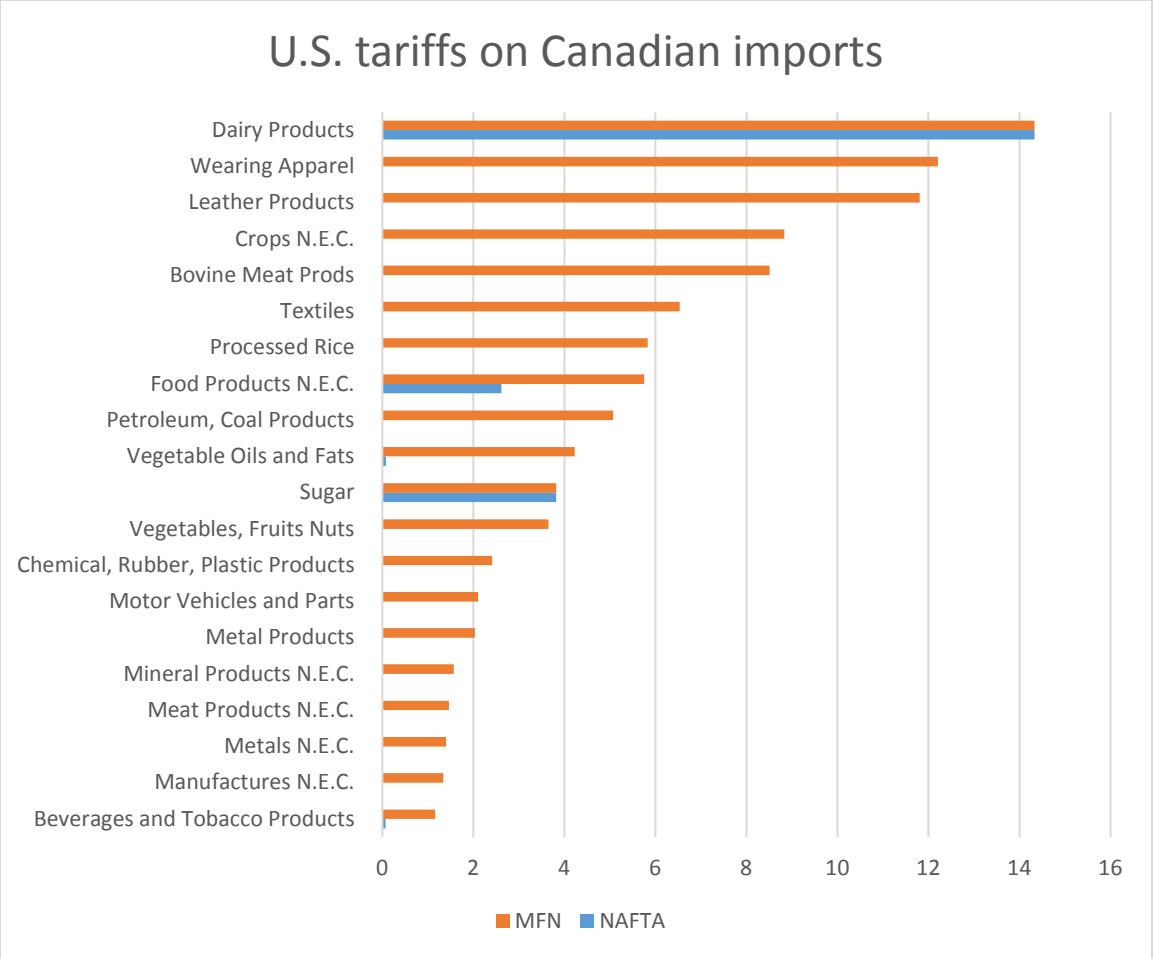

Figure 11. U.S. tariffs on Canadian imports
Source: Ciuriak et al. 2017

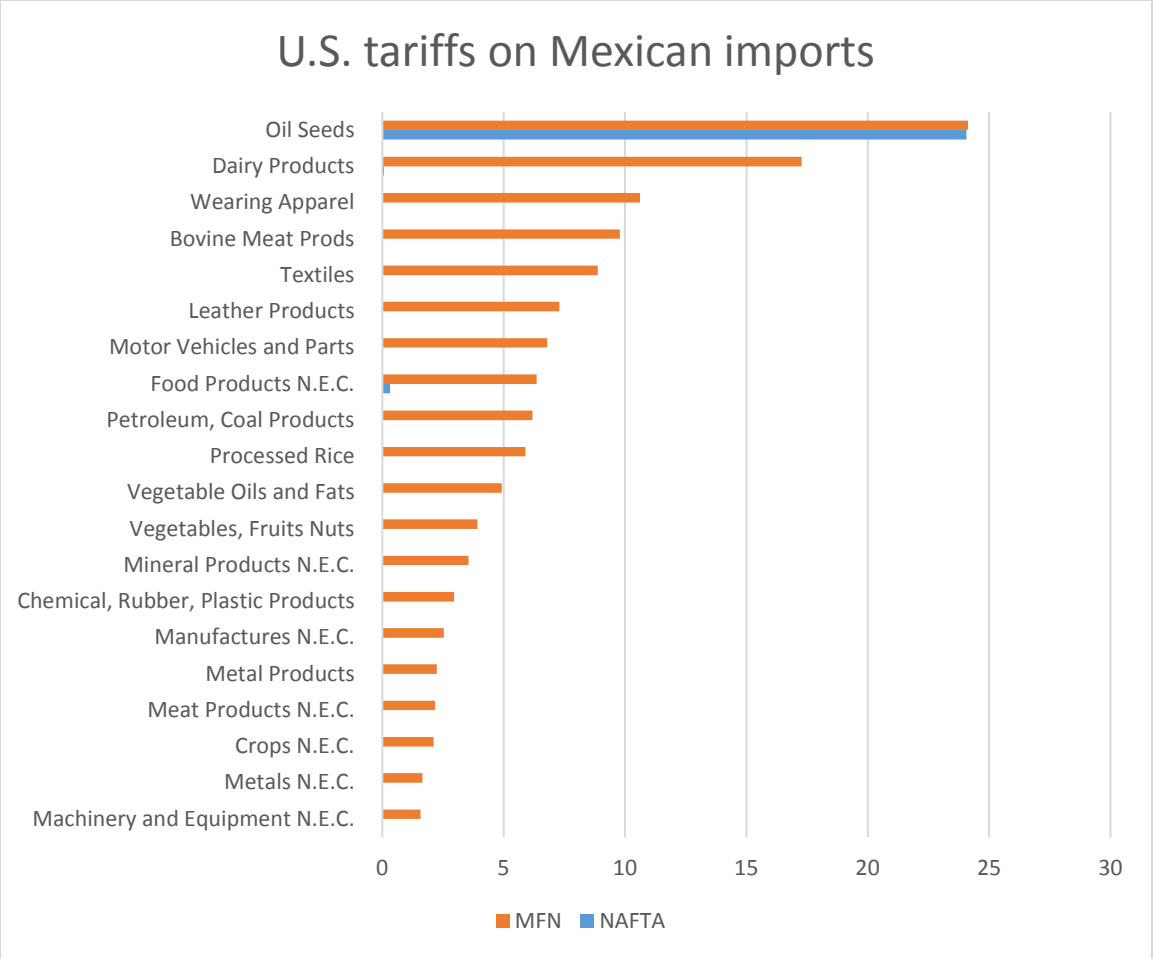

Figure 12. U.S. tariffs on Mexican imports
Source: Ciuriak et al. 2017

The Walmsley and Minor 2017 study is similar to the Ciuriak et al. study, with a few key differences:

- The Walmsley and Minor study uses a new model specification that allows tariffs to be differentiated by end-user (or final consumer). Thus, tariffs on imports for intermediate use in industry can differ from tariffs for fulfilling consumer demand.[12] This could have important impacts on firms' competitiveness if tariffs are initially low on intermediate goods.

- Their study uses a different aggregation of GTAP sectors, with less information on agricultural and food production.

- Like the Ciuriak et al. study, Walmsley and Minor take a bottom-up approach and aggregate the MFN tariffs at the HS6 product line level. However, they have, at times, a

[12] This variant of the standard GTAP model is known either as the Multi-Region Input-output (MRIO) model, or a global supply chain model.

different interpretation for the implications of moving from NAFTA to MFN tariff rates, particularly in sectors that are governed by special regimes such as tariff rate quotas. This appears to affect the impacts on dairy (that is only implicit in the Walmsley and Minor study) and sugar in the case of U.S. imports from Mexico.[13]

- The scenarios are not fully compatible. Walmsley and Minor assume that Mexico and Canada keep the NAFTA-based preferential arrangement bilaterally. The Ciuriak et al. study's base scenario assumes that all three countries revert to MFN tariffs for all bilateral trade.

- Walmsley and Minor also assess two additional scenarios. In the second scenario, they assume that the United States and Canada revert to the former Canada-U.S. Free Trade agreement (CUSTFA). In a third scenario, CUSFTA holds for Canada and the United States, and Mexico and Canada maintain preferential tariffs. In other words, the United States imposes MFN tariffs on Mexican imports, Mexico imposes MFN tariffs on U.S. imports, and all other bilateral trade is at preferential rates.

Table 3: Macroeconomic impacts on the United States from abandoning NAFTA

	Ciuriak et al.	Walmsley and Minor
GDP	-0.09	-0.09
Total exports	-1.34	-0.92
Exports to NAFTA partners	-10.66	-16.42
Total imports	-1.17	-2.18
Imports from NAFTA partners	-7.25	-8.03

There are only a handful of common indicators to compare the results from the two studies. Notably, the Walmsley and Minor study does not provide changes in real income (also referred to as equivalent variation). In the case of the Ciuriak et al. study, the loss to the United States in real income is some $20 billion. Table 3 shows some of the key macro indicators. Keeping in mind that the two studies have a different assumption on Mexico/Canada tariffs, both studies report a similar loss in GDP for the United States, but somewhat contrasting results on the U.S. trade impacts vis-à-vis its NAFTA partners. Ciuriak et al. has a smaller impact on exports—perhaps due in part to the different interpretations on the dairy and sugar sectors, but a broadly aligned impact on the decline in imports from Canada and Mexico. It is more difficult to discern the sectoral impacts, particularly in agriculture. The Ciuriak et al. study provides significant detail on the loss of export value across agriculture and food with relatively large losses for beef and other meat, and other food products. Walmsley and Minor report changes to U.S. production

[13] Ciuriak et al. assume no change to the dairy regime between the United States and Canada. In the case of Walmsley and Minor, tariffs on the 'Food' sector, that includes dairy, increase from 13% to 64% on average, which is significantly higher than any increase in tariffs on food in the Ciuriak et al. study. Similarly, Mexican sugar exports to the United States would see an increase in tariffs to 43% (from 0%). Ciuriak et al. state that 'Mexico and the United States struck a deal outside of the NAFTA regime for sugar and there is no shock applied to US imports of sugar from Mexico.' A priori, either interpretation is plausible.

where food and meat products take a relatively large hit, 1.7% and 1.5%, respectively, and an associated drop in the output of 'livestock and fishing' of some 1.2%.

Clearly, NAFTA has proven beneficial for the U.S. agriculture and food sectors, and for the U.S. economy broadly, even if it has caused structural shifts that have not benefitted all sectors.

Conclusions

This brief report provides a quantitative assessment of the possible impacts from different trade policy regimes in a volatile trade policy context. The assessment is based on the GTAP model, a standard tool in the arsenal of available tools in quantifying economics impacts of changes in trade policies. The direction of change and the overall magnitudes are likely to be robust under a number of possible specifications to the model. For example, the model assumes full employment and flexible labor markets—a perhaps not unreasonable assumption given the labor market conditions in the United States today. It also ignores other possible adjustment costs and thus reflects to a large extent a long-run outcome. Other factors that could influence the results include: 1) a re-allocation of investment across the three NAFTA countries as firms re-assess the profitability of their global supply chains; and 2) a decline in investment due to the uncertainties inherently linked to the volatility in trade policies. Though not possible in the context of the GTAP model, which is national in scope, it would also be interesting to assess the winners and losers at a regional or state level, particularly for those states that are highly reliant on agricultural exports.

U.S. agriculture has benefitted significantly from increasing market access in Canada and Mexico as a result of the formation of NAFTA some 25 years ago. The share of U.S. agricultural exports to these two countries has increased from 14.2% when the agreement was first signed to almost 30% currently. According to one study, a withdrawal from NAFTA, with tariffs reverting to MFN levels, would create a decline in U.S. agricultural exports of over $9 billion, and a loss of export revenue of $12 billion with the two NAFTA partners.

The new NAFTA agreement, USMCA consolidates the agricultural market access gains from NAFTA 1.0—fortunately for farmers—and in some sectors leads to an improvement in market access—notably in dairy and poultry exports to Canada. U.S. agricultural exports would increase by an estimated $450 million, largely concentrated in dairy and poultry (figure 13).

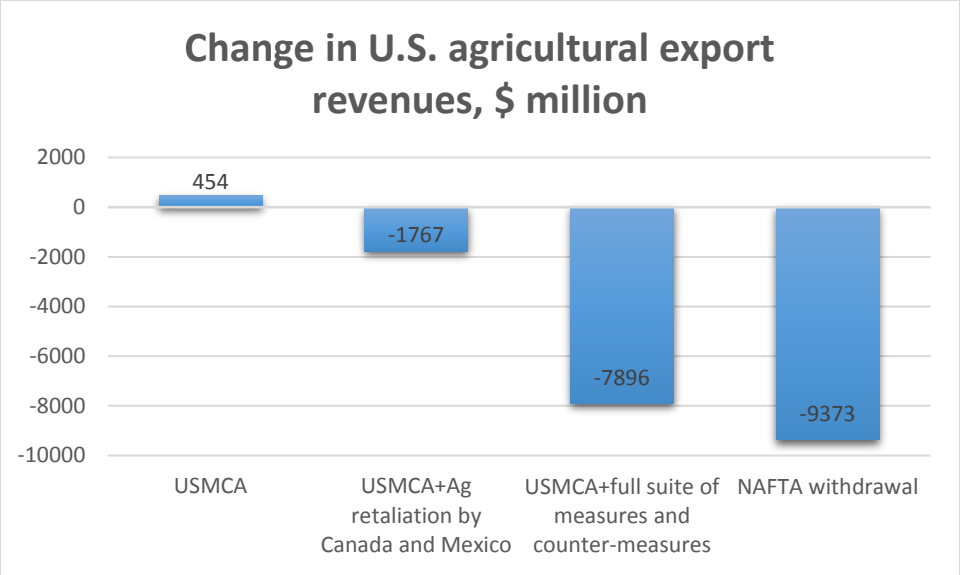

Figure 13: Agricultural export revenues under various scenarios
Source: GTAP model simulations and Ciuriak et al. 2017 for NAFTA withdrawal.

Nonetheless, the international trade regime is in a state of considerable flux as the Trump Administration reverses the decades-long commitment towards freer trade. One of the first salvos was the imposition of 25% and 10% tariff increases on steel and aluminum, respectively. The U.S. trading partners reacted to these tariffs by targeting U.S. exports, particularly in sensitive sectors such as agriculture. The retaliatory tariffs implemented by Canada and Mexico on U.S. agricultural exports will reverse the modest export gains from USMCA—a decline of $1.77 billion rather than a gain of $450 million. In the broadest possible context, with all measures and counter measures, U.S. agricultural exports will decline by around $8 billion—similar in size to withdrawing from NAFTA. These negative trade impacts will be reflected in lower incomes for U.S. farmers, reduced land returns and labor displacement.

Annex: Model assumptions

The quantitative findings discussed in this report are based on the GTAP v7 Model (Corong et al., 2017) calibrated to the GTAP global database (Aguiar et al., 2016). We use a standard closure and default elasticity values. Additional information on the model and use of the database are available from the authors.

The GTAP database used for this report is Version 10p2 with a 2014 reference year. The specific regional and sectoral aggregations are provided in Tables A.1 and A.2.

Table A.1: Regional Concordance

No.	Code	Description	GTAP concordance
1	aus	Australia	Australia
2	chn	China	China
3	kor	Korea	Korea
4	jpn	Japan	Japan
5	xea	Rest of East Asia	Hong Kong; Mongolia; Taiwan; Rest of East Asia; Brunei Darussalam; Cambodia; Indonesia; Lao People's Democratic Republic; Malaysia; Philippines; Singapore; Thailand; Viet Nam; Rest of Southeast Asia
6	ind	India	India
7	usa	USA	United States of America
8	can	Canada	Canada
9	mex	Mexico	Mexico
10	arg	Argentina	Argentina
11	bra	Brazil	Brazil
12	eur	EU28	Austria; Belgium; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Slovakia; Slovenia; Spain; Sweden; United Kingdom; Bulgaria; Croatia; Romania
13	tur	Turkey	Turkey
14	rus	Russia	Russian Federation
15	row	Rest of the World	New Zealand; Rest of Oceania; Bangladesh; Nepal; Pakistan; Sri Lanka; Rest of South Asia; Rest of North America; Bolivia; Chile; Colombia; Ecuador; Paraguay; Peru; Uruguay; Venezuela; Rest of South America; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; El Salvador; Rest of Central America; Dominican Republic; Jamaica; Puerto Rico; Trinidad and Tobago; Caribbean; Switzerland; Norway; Rest of EFTA; Albania; Belarus; Ukraine; Rest of Eastern Europe; Rest of Europe; Kazakhstan; Kyrgyzstan; Tajikistan; Rest of Former Soviet Union; Armenia; Azerbaijan; Georgia; Bahrain; Iran Islamic Republic of; Israel; Jordan; Kuwait; Oman; Qatar; Saudi Arabia; United Arab Emirates; Rest of Western Asia; Egypt; Morocco; Tunisia; Rest of North Africa; Benin; Burkina Faso; Cameroon; Cote d'Ivoire; Ghana; Guinea; Nigeria; Senegal; Togo; Rest of Western Africa; Central Africa; South Central Africa; Ethiopia; Kenya; Madagascar; Malawi; Mauritius; Mozambique; Rwanda; Tanzania; Uganda; Zambia; Zimbabwe; Rest of Eastern Africa; Botswana; Namibia; South Africa; Rest of South African Customs ; Rest of the World

Table A.2. Sectoral concordance

No.	Code	Description	GTAP concordance
1	pdr	Paddy rice	Paddy rice
2	wht	Wheat	Wheat
3	gro	Cereal grains n.e.s.	Cereal grains n.e.s.
4	v_f	Vegetables, fruit, nuts	Vegetables, fruit, nuts
5	osd	Oil seeds	Oil seeds
6	c_b	Sugar cane, sugar beet	Sugar cane, sugar beet
7	pfb	Plant-based fibers	Plant-based fibers
8	ocr	Crops n.e.s.	Crops n.e.s.
9	ctl	Cattle, sheep, goats, horses	Cattle, sheep, goats, horses
10	oap	Animal products n.e.s.	Animal products n.e.s.
11	rmk	Raw milk	Raw milk
12	wol	Wool, silk-worm cocoons	Wool, silk-worm cocoons
13	frs	Forestry	Forestry
14	fsh	Fishing	Fishing
15	coa	Coal	Coal
16	oil	Oil	Oil
17	gas	Gas	Gas
18	omn	Minerals n.e.s.	Minerals n.e.s.
19	cmt	Meat: cattle, sheep, goats, horse	Meat: cattle, sheep, goats, horse
20	omt	Meat products n.e.s.	Meat products n.e.s.
21	vol	Vegetable oils and fats	Vegetable oils and fats
22	mil	Dairy products	Dairy products
23	pcr	Processed rice	Processed rice
24	sgr	Sugar	Sugar
25	ofd	Food products n.e.s.	Food products n.e.s.
26	b_t	Beverages and tobacco products	Beverages and tobacco products
27	tex	Textiles	Textiles
28	wap	Wearing apparel	Wearing apparel
29	lea	Leather products	Leather products
30	lum	Wood products	Wood products
31	ppp	Paper products, publishing	Paper products, publishing
32	p_c	Petroleum, coal products	Petroleum, coal products
33	crp	Chemical, rubber, plastic products	Chemical, rubber, plastic products
34	nmm	Mineral products n.e.s.	Mineral products n.e.s.
35	i_s	Ferrous metals	Ferrous metals
36	nfm	Metals n.e.s.	Metals n.e.s.
37	fmp	Metal products	Metal products
38	mvh	Motor vehicles and parts	Motor vehicles and parts
39	otn	Transport equipment n.e.s.	Transport equipment n.e.s.
40	ele	Electronic equipment	Electronic equipment
41	ome	Machinery and equipment n.e.s.	Machinery and equipment n.e.s.
42	omf	Manufactures n.e.s.	Manufactures n.e.s.
43	utl	Utilities	Electricity; Gas manufacture, distribution; Water
44	cns	Construction	Construction
45	psv	Private services	Trade; Communication; Financial services n.e.s.; Insurance; Business services n.e.s.; Recreation and other services; Dwellings
46	trp	Transport n.e.s.	Transport n.e.s.; Sea transport; Air transport
47	gsv	Government services	Public administration; Defense; Health; Education

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Farm Foundation

1301 W. 22nd Street, Suite 906
Oak Brook, IL 60523
630-571-9393
https://FarmFoundation.org
@FarmFoundation

GTAP Global Trade Analysis Project

PURDUE UNIVERSITY | Agricultural Economics COLLEGE OF AGRICULTURE

Center for Global Trade Analysis
Department of Agricultural Economics, Purdue University
403 W. State Street, West Lafayette, IN
www.gtap.agecon.purdue.edu
@GTAP_Purdue