The COVID-19 pandemic: Anticipating its effects on Canada’s agricultural trade

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Abstract
With the deep recession now forecast for the world economy, trade can be expected to fall even more steeply. Agricultural trade will be less significantly affected, being insulated by its relatively low income elasticities of demand. However, a drop in the range of 12%–20% in real trade value should be expected. Canada can be expected to share in this, but, within agricultural exports, cereals will be least affected. This minimal expected impact to cereals stems partly from the risk of wheat export bans by Russia and Kazakhstan, due to increases in wheat prices. Livestock, pulses, and horticulture exporters can be expected to face a larger decline in trade prospects and revenues. An equally large threat, along with falling incomes in our trade partners, is their policy responses, particularly the potential increase in import restrictions. These may take the form of more costly inspections, tightened SPS and food safety regulations, and protectionist measures from competing domestic producers.

1 | INTRODUCTION

Among the many ways in which COVID-19 has upended the world, and Canada, are its effects on the economy and trade. This article will focus on some of the issues we see as important in trying to anticipate COVID-19’s effect on Canada’s agricultural trade. We will do this primarily for a short-term period of the balance of 2020.

The trade side of agriculture is remarkably important to Canada’s economy. Most sectors of Canadian agriculture (except dairy and poultry) rely substantially on trade in selling their output, and all sectors also use imported inputs. In 2019, Canadian
AGRIFOOD EXPORTS WERE VALUED AT $64 BILLION, \(^1\) OF WHICH ABOUT 40% AROSE FROM FARM PRODUCTS AND 60% FROM FOOD MANUFACTURING. IN FACT, CANADA’S TOTAL AGRIFOOD EXPORTS ACCOUNT FOR 11.1% OF CANADA’S TOTAL EXPORTS (2017–2019 AVERAGE), WHILE THE SECTOR CONTRIBUTES 2.6% OF THE COUNTRY’S GDP ACCORDING TO 2015 (THE MOST RECENT) DATA (STATISTICS CANADA, 2019). IN OTHER WORDS, AGRICULTURE “PUNCHES ABOVE ITS WEIGHT” IN CANADIAN TRADE, WITH MORE THAN 4 TIMES ITS SHARE OF EXPORTS RELATIVE TO ITS SHARE OF GDP. OVERALL, WE EXPORT MORE THAN HALF OF OUR AGRICULTURAL PRODUCTION. IN TERMS OF INDIVIDUAL CROPS, WE EXPORT HALF OUR BEANS, 70% OF OUR SOYA BEANS, 70% OF OUR PORK, 75% OF OUR WHEAT, 90% OF OUR CANOLA, AND 95% OF OUR PULSES (CANADIAN AGRI-FOOD TRADE ALLIANCE, 2017).

WHETHER YOU ARE A PUBLIC HEALTH PROFESSIONAL OR AN ECONOMIST, THE NATURE OF THE SARS-COV-2 CORONAVIRUS, THE CAUSE OF THE PANDEMIC, AND ITS EFFECTS ARE ALL SHROUDED IN EXTRAORDINARY UNCERTAINTY, MAKING FORECASTS PARTICULARLY DIFFICULT. THE RATE OF CHANGE IN ECONOMIC CIRCUMSTANCES AND THE APPARENT DEPTH OF THIS RECESSION IS BREATHTAKING, BEYOND OUR EXPERIENCE AND DATA SINCE THE GREAT DEPRESSION. BECAUSE INCOME (GDP) AND ITS GROWTH ARE VERY IMPORTANT FOR INTERNATIONAL TRADE, WE WILL BEGIN BY LOOKING AT THE VIRUS’ EFFECT ON GDP.

THE HEART OF THE MATTER IS THAT, TO COMBAT THE SPREAD OF THE VIRUS, MOST COUNTRIES HAVE BEEN IMPOSING A POLICY OF SOCIAL DISTANCING OR EVEN CIVIC LOCK-DOWNS, KEEPING PEOPLE AT HOME AND RESTRICTING GATHERINGS OF PEOPLE BEYOND SOME SMALL NUMBER. THE IMPACT OF KEEPING PEOPLE FROM BEING ABLE TO WORK, MEET, TRAVEL, AND SOCIALIZING HAS SEVERELY DAMAGED ECONOMIC ACTIVITY, ESPECIALLY IN THE SERVICE SECTOR. AT THIS POINT, THERE IS NO CLEAR END DATE TO THESE LOCKDOWNS AND THE ENSUING ECONOMIC DAMAGE, AND NO REGION OF THE GLOBE IS BEING SPARED.

THESE EFFECTS WILL BE HIGHLY NEGATIVE; A SIGNIFICANT WORLDWIDE RECESSION SPARING VERY FEW COUNTRIES IS NOW WIDELY FORECAST. THESE NEGATIVE EFFECTS ARE CLEAR FROM MANY DIFFERENT MEASURES: GDP GROWTH ESTIMATES, UNEMPLOYMENT INSURANCE CLAIMS, ELECTRICITY LOADS (HIGHLY CORRELATED WITH GDP), NITROGEN DIOXIDE EMISSIONS (ALSO CORRELATED WITH INDUSTRIAL ACTIVITY), AND A WIDELY CITED INDEX OF MANUFACTURING FIRMS’ PURCHASING MANAGERS EXPECTATIONS (PMI) (BLUEDORN, GOPINATH, & SANDRI, 2020). THE MOST RECENT IMF FORECAST FOR 2020 HAS ESTIMATED REAL WORLD ECONOMIC GROWTH TO BE –3.0%, A DOWNGRADE OF 6.3 PERCENTAGE POINTS FROM JANUARY 2020. THE WORLD GDP GROWTH RATE FOR 2009, THE BOTTOM OF THE FINANCIAL RECESSION, WAS –0.1% (IMF, 2020). WORLD ECONOMIC GROWTH IS IMPORTANT FOR CANADA’S TRADE, BUT SO TOO IS THE GROWTH OF THE UNITED STATES, EU, AND CHINA. THE MOST RECENT ESTIMATES FOR THEIR 2020 REAL GDP GROWTH RATES ARE –5.9%, –7.5%, AND +1.2%, RESPECTIVELY. ALL FORECASTS ARE COUCHED IN CAUTIOUS TERMS DUE TO THE NECESSARY ASSUMPTIONS ABOUT MANY UNKNOWNS.\(^2\) EMERGING MARKET AND DEVELOPING COUNTRIES BUY IMPORTANT SHARES OF CANADIAN GRAIN, AND THEY ARE ALSO NOT SPARED BY THIS RECESSION: THEIR COLLECTIVE (INCLUDING CHINA) ESTIMATED REAL GDP GROWTH IS –1% (IMF, 2020). THESE COUNTRIES ARE BEING DAMAGED BY THEIR OWN LOCKDOWNS AND FALLS IN DOMESTIC INCOME, AS WELL AS FALLING INTERNATIONAL COMMODITY PRICES, REDUCED MIGRANT REMITTANCES, AND STRIKING PORTFOLIO (FOREIGN INVESTMENT) OUTFLOWS.

2 | IMPLICATIONS FOR TRADE

ALL OF THIS BACKGROUND ON AGGREGATE ECONOMIC ACTIVITY IS RELEVANT FOR LOOKING AT INTERNATIONAL TRADE, BECAUSE, AMONG OTHER FACTORS, AGGREGATE GROWTH IN TRADE VOLUMES IS POSITIVELY CORRELATED WITH GROWTH IN GDP. IF WE WISH TO ANTICIPATE THE EFFECTS ON AGRICULTURAL TRADE, IT IS USEFUL TO BEGIN WITH THE EFFECT ON AGGREGATE TRADE FIRST AND THEN ADJUST IT TO THE CHARACTERISTICS OF TRADE IN AGRICULTURE AND FOOD PRODUCTS. SHORT OF A DETAILED MODEL OF AGGREGATE TRADE, A BACK-OF-THE-ENVELOPE APPROACH THAT IS WIDELY USED IS TO USE THE RATIO OF THE GROWTH IN TRADE TO THE GROWTH IN GDP. WE CAN USE THIS RATIO TO GIVE US GUIDANCE ON WHAT TO EXPECT IN TERMS OF TRADE CHANGES, GIVEN THE GDP GROWTH ESTIMATES LAID OUT ABOVE.\(^3\) IN THE LAST DECADE, THIS RATIO HAS FALLEN BACK TO A LEVEL OF ROUGHLY 1, BUT IT IS LIKELY MORE RELEVANT TO THE CURRENT SITUATION TO OBSERVE WHAT HAPPENED TO THIS RATIO FOLLOWING THE 2008 FINANCIAL RECESSION. AT THAT TIME, THE RATIO OF TRADE GROWTH TO GDP GROWTH ROSE TO 6.3 AND TRADE VOLUMES FELL BY 12%–15% (WTO, 2020; AND KEYNES & BOWN, 2020, RESPECTIVELY). THAT POST-2008 EXPERIENCE IS VERY USEFUL AT THE CURRENT TIME, BECAUSE, LIKE THE COVID-19 CRISIS, THE FINANCIAL CRISIS OF 2008 WAS A RELATIVELY SUDDEN NEGATIVE EVENT, NOT SO OBVIOUSLY CLOUDED BY THE DECLINE OF GLOBAL VALUE CHAINS.

1 STATISTICS CANADA. (2020). TRADE DATA ONLINE. HTTPS://WWW.IC.GC.CA/APP/SCR/TDST/TDO/CRTR.HTML?TIMEPERIOD = 10%7CCOMPLETE+YEARS&REPORT TYPE = TE&hSelectedCodes = %7C111%7C311%7C312%7C3161%7C112110%7C112120%7C112210%7C112310%7C112320%7C112330%7C112910%7C115110%7C115210&searchType = KS_CS&productType = NAICS&currency = CDN&countryList = ALL&runReport = true&grouped = INDIVIDUAL&toFromCountry = CDN&knaArea = 9999

2 TO ILLUSTRATE, A RECENT FORECAST BY PROMINENT ECONOMISTS THAT ADDS THE EFFECT OF ECONOMIC UNCERTAINTY TO THEIR MODEL “PREDICTS THE YEAR-ON-YEAR CONTRACTION IN US REAL GDP OF NEARLY 11 PERCENT AS OF 2020 Q4” (BAKER, BLOOM, DAVIS, & TERRY, 2020). THE AUTHORS GO ON TO SAY, “THERE ARE REASONS TO THINK OUR ILLUSTRATIVE EXERCISE UNDERSTATE THE LIKELY OUTPUT EFFECT OF THE COVID-19 PANDEMIC.”

3 WE ARE NEITHER FOCUSING ON THE DIRECTION OF CAUSATION NOR THE MANY OTHER VARIABLES THAT INFLUENCE THIS RATIO. RATHER, WE ARE NOTING WHAT WE MIGHT LEARN FROM SHORT-TERM INCOME EFFECTS.
in manufacturing or rising protectionism, both of which have been occurring to reduce the level of trade. But GDP is dropping even more now, so larger trade declines are very likely.

Drawing on their own modeling and data, the WTO (2020) published their own forecasts of global trade on April 8, 2020. The substantial uncertainties noted at the outset of this paper led them to consider a wide range of possibilities, forecasting a range of declines from 13% in the optimistic scenario to 32% under the pessimistic scenario, for the full 2020 year. Even the optimistic scenario means the decline in trade with the COVID-19 crisis will be greater than that experienced following the Financial Crisis. And, given how the depths of this COVID-19 recession are now forecast to be greater than at the time of the WTO modeling, one should realistically be prepared for larger trade declines than the WTO’s optimistic scenario. Using the mid-point of the WTO range, say roughly 20%, may be a more useful estimate of the decline in total merchandise trade volume.

Beyond these aggregate declines, the WTO (2020) results indicate that double-digit declines in trade volumes will affect nearly all regions, “with exports from North America and Asia hit hardest.” Two other key points are, “[t]rade will likely fall steeper in sectors with complex value chains, particularly electronics and automotive products,” and “[s]ervices trade may be most directly affected by COVID-19 through transport and travel restrictions” (p. 1). It should be recalled that a 20% decline in merchandise trade volume in 2020 is on top of the 0.1% fall in that trade which occurred in 2019, and, in 2019, services trade had a USD value about one-third that of merchandise trade.

3 | WHAT ABOUT AGRICULTURAL TRADE?

Our focus is on agricultural trade, so we wish to disaggregate these forecasts at least to the food and agriculture sector. Because most foods fall into the category of necessities, this sector will be insulated by its low income elasticities, especially in the higher income developed countries. We can expect smaller declines in the demand for food products and food imports compared to expected declines in total trade flows. With the substantial fall in incomes in most countries, we can expect the demand for food imports from developing countries (whose demand elasticities for food are still relatively high) to decline the most, with more modest declines coming from the rich countries. This pattern is shown in Figure 1, with income elasticities falling as average country income per capita rises.

Similarly, there is a range of income elasticities across food product types, with staple foods like breads and cereals having the smallest income elasticities (shown in blue in Figure 1), while fruits and vegetables have higher income elasticities (shown in orange). High protein foods such as meat have the highest income elasticities (shown in grey). This would lead us to expect
larger declines in trade for the latter categories, but smaller declines for cereals. The demand for agricultural products that are used for biofuels as well as food, such as corn and soybeans, may show a larger decline in trade due to the concurrent sharp fall in the prices of oil and energy more generally.

More evidence on disaggregated changes in trade can be seen in an UNCTAD Report Update (2020) that reports nominal commodity prices with year-to-date growth rates to March 25, 2020. They likely reveal shifts in demand from their models and show an all-commodity (energy, industrial and precious metals, and agriculture) first quarter price fall of 37.3%. For all agriculture commodities the price decline is 6.8%. Of interest to Canada, corn and soybean prices have fallen 10% and 8%, respectively, livestock prices have fallen 15%, and wheat prices have risen by almost 4%.4

These numbers correspond well to what we would anticipate on the basis of income elasticities, with allowance for biofuel market factors, not only in terms of their direction but also in the relative magnitudes. These numbers also focus on commodity trade, not food products that follow a more complicated supply chain. As mentioned by the WTO above, products that follow a more complex supply chain are likely to be disrupted much more severely for several reasons, and this includes the fruit/vegetable subsector and food sold primarily within restaurants (Glauber, Laborde, Martin, & Vos, 2020). Finally, they focus on the demand side of these various commodities via the fallen income of consumers.

The supply side is also important, as was found in the food price spike of 2007–2008. Fears about a potential shortage of agricultural products are less well-founded now. For basic cereals (wheat, corn, and rice), stocks relative to use were at or near median levels over the 2000–2019 period (Glauber et al., 2020; Swinnen, 2020). In addition, harvests are forecast to be at or above normal, and, with the possible exception of rice production in Asia, both production and transport are mechanized and capital-intensive, minimizing effects of COVID-19-induced disruptions in labor availability. As noted above, the situation may be quite different for fruits and vegetables, where the flows of migrant labor are often critically important, even in North America and especially at planting.

Because these price data apply only to the first quarter, a 6.8% fall could be seen as a lower bound on the decline in trade. Because of the smaller impact of a recession on the food and agriculture trade sector, the WTO (mean) forecast of a total trade volume decline of 22% would be an upper bound. Agricultural price declines (already observed, above) would make this a larger decline in trade value. In 2009, at the worst of the 2008 financial recession, agricultural trade value fell by 12%,5 which was the largest agricultural trade decline in 19 years.

If world agricultural trade value can be expected to decline by, say, 15%, how will this affect Canada? On the surface, it would appear to mean that declines in purchasing power in our export markets will reduce sales and export volumes. In line with the income elasticities noted above, we would expect the smallest decline for cereal exports, pulses next, and the largest declines in meat exports. In addition, there are supply side considerations on the food processing operations and some fruits and vegetables that engage in exports due to the increased difficulty of getting migrant labor for the latter and healthy domestic labor to keep processing plants running during quarantines and lockdowns that restrict public movement (Bogart, 2020). Even if there are stated border exceptions for agricultural labor and essential goods transportation, there are already reports of backlogs and delays in the new policies’ implementation. Other countries’ policy responses must also be considered in assessing how Canada’s exports will fare this year; they are discussed in the next section.

A final factor affecting Canadian exporters is the Canadian dollar exchange rate. It has fallen by 8.3% in just over two weeks in the first half of March, likely due primarily to the fall in oil prices. It has since (to mid-April) re-gained half of that fall. If this lower value of the Canadian dollar persists, it will raise revenues that Canada, and its agricultural sector, will receive from exports. This will soften the impact of declining trade values by raising the Canadian dollar value of export proceeds; instead of a 15% fall in trade value, the fall in Canadian dollar export revenues would be only 11%. But exchange rates are highly variable and unpredictable, to say nothing of agricultural prices, so these numbers should be interpreted with large confidence intervals around them.

**4 | IMPACT OF GOVERNMENT POLICIES ON AGRICULTURAL TRADE**

The discussion of anticipated trade flows has abstracted from a very important element for agricultural and food products, namely the response of governments in terms of trade policy. The big risk, as pointed out by Glauber et al. (2020), is that major

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4 These price changes are in USD. They would be less negative in CAD, depending on the actual month one examines, because of the fall in the value of the Canadian dollar that occurred in March 2020. Also, because these estimates likely were made earlier than late March, they can be expected to underestimate the calendar year value.

5 Author’s calculation using WTO data; https://timeseries.wto.org
exporting countries may respond to this crisis by imposing export restrictions. This is well documented for the food price crisis of 2007–2008, when rice and wheat prices were pushed upward by such export bans, especially rice, because the actions of India and Vietnam in March 2008 caused world prices to roughly triple, instead of merely doubling (FAO, 2011).

At the current time, Kazakhstan has stopped exports of some cereal products (wheat flour), oilseeds, and vegetables. Vietnam stopped issuing new export certificates for rice until the end of March, when it assesses its stocks, and, judging from its past behavior, this will continue. Vietnam did the same in 1992/93 and in 2008, both times to stop increases in the domestic price of rice within the country. India has a history of imposing export restrictions when world prices are rising, even though at this time the country’s stocks of rice are at a historic high and crop forecasts for 2020 are high. Russia banned wheat exports in 2010, re-igniting food price increases at that time, and an export quota for wheat is being considered at the present time (Medetsky & Durisin, 2020). The quota is apparently being considered for barley, corn, and rye, as well as wheat.

These countries argue that they are placing the issue of food security in the foreground of policy decisions, but their actions are classic examples of “beggar-thy-neighbor” policies that force other countries to bear the cost, or at least the risk, of restricted supplies or even create reduced supplies for them. For large countries in these markets, like India, Vietnam, and Russia, their actions do affect world prices.

The distributional effects of adding export restrictions will, like the COVID-19 crisis itself, fall most heavily on the poor in importing countries by reducing trade, raising food prices, and reducing food security in all but the export countries of that commodity. This is especially true for staples like wheat and rice. Even for the exporter country, the supply situation, via high stock levels and good crop forecasts, does not warrant any such trade restrictions. However, export restrictions could actually help Canada if they raise the prices of products we export. For example, if Russia imposes a wheat export ban, this will likely raise world wheat prices to Canada’s advantage. The same applies to the export bans being undertaken and possibly extended by Kazakhstan.

But, aside from the opportunistic shift to protectionism on food through export limits, there are other trade restrictions coming from the various country pandemic responses. There is the more direct impact of public health restrictions on the food trade by way of cross-border movement restricted to “essential” traffic. This includes new transport regulations that have led to trucks queuing at borders, damaging particularly the fruit and vegetable trade, creating congestion, and delaying all trade. A related danger to Canadian food exports is the possible imposition of new import restrictions under the cover of COVID-19 responses, likely through sanitary and phytosanitary (SPS) and food safety regulations. These are familiar from recent trade conflicts with India over lentils and China over canola. Vietnam has also followed this course in the past with pork. All three cases are realistic examples of how Canadian agricultural exports could be placed at risk due to trade restrictions on imports that may soon arise.

5 | CONCLUSIONS

For the coming year, a deep worldwide recession is widely forecast from all reputable international agencies, even if these forecasts are necessarily filled with uncertainty about the nature of the coronavirus, the public health responses of all countries, and how economies will adjust. From the April IMF World Economic Outlook release (2020), world real GDP growth is forecast at −3% and US GDP growth at −6%, making 2020 the worst recession since the Great Depression. It will take a heavy toll on international trade more generally, and even on agricultural trade. The WTO-forecasted range of a possible decline in total trade volume is 13%–32% but can be expected to be even more negative in value terms due to falling prices. Agricultural trade will be less significantly affected due to the generally lower income elasticities of demand, but, learning from the 2009 recession, a larger drop, say, in the range of 12%–20% in trade value should be expected. The prospects for Canada will be best in the cereals category due to the lowest income elasticity. And, if there are more widespread export bans, such as for wheat, the resulting price rise would help the Canadian wheat sector. Livestock, pulses, and horticulture will likely face a larger trade decline due to the large loss of purchasing power in many importer countries. In addition, the threat of added import restrictions via imposition of familiar SPS and food safety regulations is both plausible and potentially significant for those commodities throughout 2020.

Looking ahead to 2021 and longer, there is first the question of how quickly the world economy will bounce back, even though it has always done so. For agricultural trade, the fundamentals are likely to dominate: a continuing international demand for foods and food ingredients to make products that consumers in that country want, and to do it more inexpensively than buying the local product. How quickly we will return to previous export levels is uncertain. Whether exports will return to

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6 For more policy proposals on how to maintain food security in low-income countries, see Swinnen (2020) and Hendrix (2020), and to support food supply chains from the effects of COVID-19, see Torero (2020).
their previous growth path will depend not only on how quickly income growth will return but also on the removal of policy restrictions in our trading partner countries. Logistics bottlenecks due to COVID-19-related public health regulations are already changing some of this trade. But, once the lockdowns are over, the border bottlenecks should be removed. The bigger danger facing Canadian food exports would be an increase in, or continuation of, import restrictions that arise for SPS, food safety, or local protectionist reasons. This may include more inspections and added retail packaging. These have always been a challenge for Canadian agriculture, and this pandemic will likely increase that challenge.

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