



Potential Implications of COVID-19 on the Canadian Pork Industry

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Abstract

Canada and the US have strong economic ties and form part of an integrated North American pork industry. Canada's pork industry is export-oriented, and the US represents a key market for both live pigs and pork. Pork value chain stakeholders include input suppliers, pig producers, transportation companies, slaughter plants, wholesalers, and retailers. There are three overriding areas of concern for the Canadian pork industry with respect to potential impacts of the current pandemic (COVID-19). The first is Canada/US trade and the ability to continue exporting Canadian live pigs and pork to the US. The second is labour and the impact of potential absenteeism on all sectors of the pork value chain. The third is global trade, because Canada's pork industry relies heavily on exporting pork to markets around the world.

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Résumé

Le Canada et les États-Unis ont des liens économiques solides et font partie d'une industrie porcine nord-américaine intégrée. L'industrie canadienne du porc est tournée vers l'exportation et les États-Unis représentent un marché clé pour les porcs vivants et la viande de porc. Les parties prenantes de la chaîne de valeur du porc comprennent les fournisseurs d'intrants, les producteurs de porcs, les sociétés de transport, les abattoirs, les grossistes et les détaillants. Il y a trois principaux sujets de préoccupation pour l'industrie canadienne du porc en ce qui concerne les effets potentiels de la pandémie actuelle (COVID-19). Le premier est le commerce canado-américain et la capacité de continuer d'exporter de la viande de porc et des porc vivants canadiens aux États-Unis. Le deuxième est le travail et l'impact de l'absentéisme potentiel sur tous les secteurs de la chaîne de valeur du porc. Le troisième est le commerce mondial, car l'industrie porcine canadienne dépend fortement de l'exportation de porc vers les marchés du monde entier.

Introduction

COVID-19 has brought tremendous uncertainty to global markets in terms of human health, the economy, and food security. While the impact to human health is of utmost importance, this disease has the potential to be extremely disruptive to the Canadian pork supply chain. This paper provides thoughts on the potential implications that this pandemic could have on the pork industry, although there are still many unknowns at this time. The paper begins with an overview of the pork value chain. It then moves into a discussion of market access (i.e., North American and global trade), market dynamics, labour, policies announced to date, and ends with some final comments.

Pork Industry Value Chain

Canadian pork production is a complex and integrated value chain. Key stakeholders include input suppliers, pig producers, transportation companies, slaughter plants, wholesalers, and retailers.

In 2019, there were 21.7 million pigs slaughtered in Canada (AAFC, 2020). A further 5.1 million pigs (weaner pigs and market hogs) were exported to the US for finishing and slaughter (AAFC, 2020). Canada is heavily reliant on exporting not only live pigs but also pork, with about 68% of the pork produced in Canada being exported (USDA, 2020). The US is a key market for Canadian pork, with a quarter of pork exports by volume going there in 2019.¹ In terms of regional production, Quebec had 31.2% of Canada's total hog inventory on January 1, 2020, followed by Ontario at 25.7%, and the Western Provinces at 42.4% (Statistics Canada, 2020). On its own, Manitoba represented 23.9% of Canada's inventory, so, together with Quebec and Ontario, these three provinces accounted for 80.8% of total hog inventory.

¹ Statistics Canada. AAFC/MISB/AID/Redmeat Section

The complexity of the value chain, the number of stakeholders involved, and the economic activity generated by provinces puts into perspective the importance of the pork value chain and the need to maintain human health, pig production, and both North American and global trade.

Market Access

Exports are a foundation of the Canadian pork sector. In 2019, Canada exported 1.3 million tonnes of pork, worth \$4.2 billion.² Sixty-six percent of Canadian pork exports in 2019 by volume went to three countries - the United States (25%), Japan (21%), and China (20%).³ In total, Canada exports to more than 90 countries. Together, Japan and China represent 41% of Canada's exports, with Japan being a high pork value market and China being a high-volume market. China is the world's largest producer and consumer of pork. Their sow inventory, which represented 60% of the global sow herd in 2018, has recently declined by 42% due to African Swine Fever (ASF) (USDA, 2020). ASF is a disease that affects pigs, causing up to 100% mortality.

Of note, however, is the impact COVID-19 might be having in these export markets, whether their borders are open to receive Canadian pork, and whether they are able to distribute it. Difficulties could arise if countries or areas within countries restrict the movement of people within their borders, such as the lockdown that occurred in Wuhan, China, during the COVID-19 outbreak. An open border with the US is extremely important to the sector as Canada relies on exporting pork; as implied, domestic consumption only accounts for 32% of production.

In addition, approximately 100,000 pigs/week are exported from Canada to the US (USDA, 2020). Most of these pigs enter the US through Michigan (about 20% so far this year) and North Dakota (77%). A large portion, about 80%, are feeder pigs sent to the US for growing and eventual slaughter, while another 18% are sent directly for slaughter. These pigs constitute less than 3% of the weekly US slaughter, so they do not have a significant effect on the US market, but it could be devastating for the Canadian industry if the border closed. At present, Canada/US border restrictions apply to people only. Trade and commerce, including livestock movement, are continuing, but the importance of maintaining an open border with the US for essential industries must be stressed. To date, there have been no reports of lengthy delays at the border for Canadian pigs crossing into the US. However, if large numbers of border inspection staff become ill, then it's possible that delays will occur. Since the US currently has the most confirmed cases of COVID-19 in the world, the risk to Canada in terms of human health, travel for essential industries, and market access is increasing.

The number of Canadian pigs that are exported to the US and the total value and volume of Canada's pork exports show the importance of maintaining market access in North America and globally.

² Statistics Canada. AAFC/MISB/AID/Redmeat Section

³ Statistics Canada. AAFC/MISB/AID/Redmeat Section

Market Dynamics

The general uncertainty in the global market creates volatility across all markets, including commodities. There are some unique market dynamics within the Canadian pork industry; in particular, prices of feed inputs (e.g., corn, soybeans, wheat) and hogs in Canada are based off US prices.⁴ The exchange rate significantly shapes Canadian prices. As the Canadian dollar drops relative to the US, the CAD/USD exchange rate increases, which causes Canadian pig or pork prices to increase. As an example, the CAD/USD exchange rate increased from 1.34 on March 2 to 1.45 on March 18, 2020 (see Figure 1), which caused Canadian pork prices to increase.

With regards to pork exports, the US is a key competitor with approximately 25% of their pork production exported (USDA, 2020). The US is currently producing record numbers of hogs. This, combined with fears of African Swine Fever (ASF) arriving in North America and uncertainties surrounding the US-China Phase 1 trade deal and the amount of pork China might (or might not) purchase from the US, has the potential to ultimately impact prices in Canada.

With respect to hog prices, the COVID-19-pandemic-induced panic-buying in addition to the weak Canadian dollar pushed Canadian pig prices to recent highs. The prices surged after March 13, 2020, in Ontario and Quebec as shown in Figure 2. This was the date when travel restrictions started to be implemented in Canada.

The volume of pigs sold surged temporarily, but this is not likely to materialize into long-term demand. It reflects the processor response to consumer behavior change, which started with hoarding, followed by reduced shopping frequency to practice social distancing. For example, compared to the previous day, the Quebec daily hog volume surged 46% on March 17 (see Figure 3). The volume trended downwards in the following weeks, which is likely due to COVID-19 illnesses resulting in a plant temporarily shutting down (Olymel, 2020).

In the event of a pandemic-triggered recession, the impacts on consumers may be different than for producers. Jin (2008) provided evidence that pork consumption in South Korea declined as a result of the 1998 Asian financial crisis. In Canada, pork consumption per capita has been on a downward trend since 1980.⁵ It is anticipated that this downward trend in pork consumption will continue with no significant change amid a possible recession following this pandemic. During the 2008 financial crisis when Canadian pork prices were low, pork consumption continued to follow the pre-existing downward trend line.

⁴ For example, the 100% Ontario Base Formula Price 100 Index is mechanically linked to the USDA national daily direct hog prior day report. The formula is: 100% Ontario Base Formula Price 100 Index (C\$/cwt) = (CME constructed price (US\$) - 0.56 (US\$/cwt)) * U.S. dressing percentage (0.74) * Metric conversion (2.2046) * Exchange rate (CAD/USD) / Ontario dressing percentage (0.80) / divisor (1.1195). See Ontario Pork price calculation at <https://www.ontariopork.on.ca/Price-Reporting/Price-Calculation-for-more-details>.

⁵ Statistics Canada. Calculations done by AAFC-AID, Market Information Section. Protein disappearance of animal protein sources in Canada.

However, a recession could severely impact producers. During the 2008 financial crisis, in addition to persistently low market prices, increasing feed costs, and technical trade barriers (such as the US Mandatory country of origin labeling legislation), the Canadian hog inventory declined 15% from 2007 to 2009. Also, about 15% of hog farmers left the industry in 2008, the highest one year drop from 2008 to 2020 (Statistics Canada, 2020). Following the COVID-19 pandemic, a prolonged period of low pig prices and moderate feed costs could result in financial challenges for producers and a reduction in hog numbers.

Labour

The pandemic has the potential to amplify the labour shortage in the pork sector based on at least two factors: (a) illness in the current workforce reducing labour, and (b) travel restrictions and concerns regarding travel for foreign labourers.

Critical to all businesses in the pork value chain is the availability of labour. If any of these businesses start having high absenteeism due to COVID-19, the outlook can change quickly. Once employees start testing positive for the virus, businesses such as processing plants may close temporarily in order to sanitize and allow time for all employees to self-isolate (Olymel, 2020). A closure of 14 days is disruptive, especially if multiple plants in North America are closed at the same time, and can easily have a negative impact on hog prices. When a plant closes, pigs can't remain on farm very long due to building constraints, since other pigs are waiting to fill those spaces. The pigs must be sold to other plants, but, when slaughter capacity is already tight, prices may decline significantly before processors will purchase them.

The consideration of potential labour shortages in the regulatory sector is also of importance. To maintain food safety and integrity of the industry, the Canadian Food Inspection Agency (CFIA) has a 'business continuity plan' that will shift resources (people) from areas deemed to be lower risk to those deemed higher risk to ensure sufficient inspection staff, enabling processing plants to continue operating (CFIA, 2020). Although this is a positive step, if a number of individuals test positive in a plant, it is possible that the plant will still temporarily shut down.

The rural nature of swine production has its benefits during a pandemic. Self-isolation is theoretically easier for those that are already isolated. In addition, the strict biosecurity protocols in place on swine farms mean disinfecting and staying clean are part of a regular day, thus reducing the potential spread of COVID-19 on-farm and amongst workers. There is no evidence to date that pigs are susceptible to COVID-19; therefore, it is only human-to-human contact that would spread the virus. However, illness of farm operators and employees due to COVID-19 could impact care for hogs, and the resources available to help during this time could become limited due to how widespread the virus is. Industry organizations such as Ontario Pork are working to address barn operation issues in the case of illness (Ontario Pork, 2020).

Due to the shortage of domestic labour, some segments of the pork industry rely on foreign workers to augment the labour force year-round, compared to, for example, fruit and vegetable farms that require workers on a seasonal basis. Slaughter plants, and to a lesser extent farms, have been relying

on temporary foreign workers to help meet their labour needs. The reliance of the agricultural industry on foreign workers has been acknowledged by the government, and, despite international travel restrictions, Minister Bibeau (Federal Minister of Agriculture and Agri-Food) confirmed that temporary foreign workers in agriculture, agri-food, seafood processing, and other key industries will be permitted to enter Canada (Immigration, Refugees and Citizenship Canada, 2020). Measures such as this are positive; however, concern regarding the ability of these workers to travel to Canada may impact the supply of foreign workers. In Europe, border lockdowns immobilized legions of seasonal workers from Eastern Europe (Alderman, Eddy, & Tsang, 2020). Germany, which previously let seasonal workers bypass travel restrictions, initially barred all seasonal workers from entering the country, citing concerns by the public that they could bring COVID-19 with them. This ban was recently lifted (EURACTIV, 2020).

Policy Actions

Support measures and policy announcements have been directed toward many sectors of the Canadian economy to cushion the impact of this global pandemic. Policies that have impacts across the economy, such as lower interest rates and wage subsidies, will help the entire value chain in terms of reducing operating costs and maintaining the workforce. The Government of Canada announced a wage subsidy of up to 75% for businesses that have a decline in revenue of 30% or more as a result of the pandemic (Harris, 2020).

Farm Credit Canada (FCC) was allocated an additional \$5 billion in lending capacity from the Government of Canada to support producers, agri-businesses, and food processors. In addition, FCC has implemented deferrals on loan payments: either a deferral of principal and interest payments for up to six months or a deferral of principal payments for up to 12 months (FCC, 2020).

These measures to reduce operating costs and increase credit availability provide support to the Canadian swine sector, but the external nature of the threat of COVID-19 and the constantly changing dynamics of the situation make the ultimate impacts unknown.

Conclusion

The impact of the COVID-19 outbreak on the Canadian pork industry is evolving. In the short term, panic-buying and a weak Canadian dollar pushed up hog prices. Changes in consumer shopping behavior to practice social distancing also challenged the sector's ability to meet volatile demand. Over the long-term, the impact of COVID-19 on the Canadian pork industry ultimately depends on the industry's ability to maintain markets and people. Labour shortages due to absenteeism and concerns about exposure to the virus, the shutdown of processing plants, and trade interruption with the US and the rest of the world are the industry components of most concern.

References

- Agriculture and Agri-Food Canada. (2020). Red meat and livestock slaughter reports. <http://www.agr.gc.ca/eng/animal-industry/red-meat-and-livestock/red-meat-and-livestock-market-information/slaughter/?id=1415860000003>
- Agriculture and Agri-Food Canada. (2020). Red meat and livestock export reports. <http://www.agr.gc.ca/eng/animal-industry/red-meat-and-livestock/red-meat-and-livestock-market-information/exports/?id=14158600000065>
- Alderman, L., Eddy, M., & Tsang, A. (2020, March 27). Migrant farmworkers whose harvests feed Europe are blocked at borders. *The New York Times*. <https://www.nytimes.com/2020/03/27/business/coronavirus-farm-labor-europe.html>
- Bank of Canada. (2020). Daily exchange rates lookup. *Statistics: Exchange Rates* <https://www.bankofcanada.ca/rates/exchange/daily-exchange-rates-lookup/>
- Canadian Food Inspection Agency. (2020, March 23). The CFIA is prioritizing critical activities during COVID-19 pandemic. *Coronavirus disease (COVID-19): CFIA information for industry*. <https://inspection.gc.ca/covid-19/cfia-information-for-industry/eng/1584462704366/1584462704709#a1>
- EURACTIV. (2020, April 3). Germany to relax coronavirus border controls for farm workers. *EURACTIV*. <https://www.euractiv.com/section/agriculture-food/news/germany-to-relax-coronavirus-border-controls-for-farm-workers/>
- Farm Credit Canada. (2020). Latest updates. *Our response to COVID-19*. <https://www.fcc-fac.ca/en/covid-19.html>

Harris, K. (2020, March 30). All businesses seeing 30% drop in revenue due to pandemic will be eligible for 75% wage subsidies: Trudeau. *CBC News*.

<https://www.cbc.ca/news/politics/trudeau-covid19-business-supports-1.5514558>

Immigration, Refugees and Citizenship Canada. (2020, March 20). Canada provides update on exemptions to travel restrictions to protect Canadians and support the economy. *Newsroom – Immigration, Refugees and Citizenship Canada*. <https://www.canada.ca/en/immigration-refugees-citizenship/news.html>

Jin, H.J. (2008). Changes in South Korean consumers' preferences for meat. *Food Policy*, 33(1), 74-84.

Olymel. (2020, March 29). Fight against the spread of COVID-19: Temporary closure of the Olymel pork processing plant in Yamachiche for the next 14 days. *Olymel Press Release*.

http://www.olymel.ca/webfolder_download/638aca12bb5b90bc3408285141b32ca0/file.pdf

Ontario Pork. (2020). *COVID-19 farm information*.

<https://www.ontariopork.on.ca/Communications/COVID19-Farm-Information#manage-on-farm>

Ontario Pork. (2020). Mandatory price report. *Price Reporting*.

<https://www.ontariopork.on.ca/Price-Report>

Statistics Canada. (2020). *Table 32-10-0160-01, Hogs statistics, number of hogs on farms at end of semi-annual period (x 1,000)*.

USDA. (2020). *PS&D production, supply and distribution. Foreign Agricultural Service: PSD Online*.

<https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery>

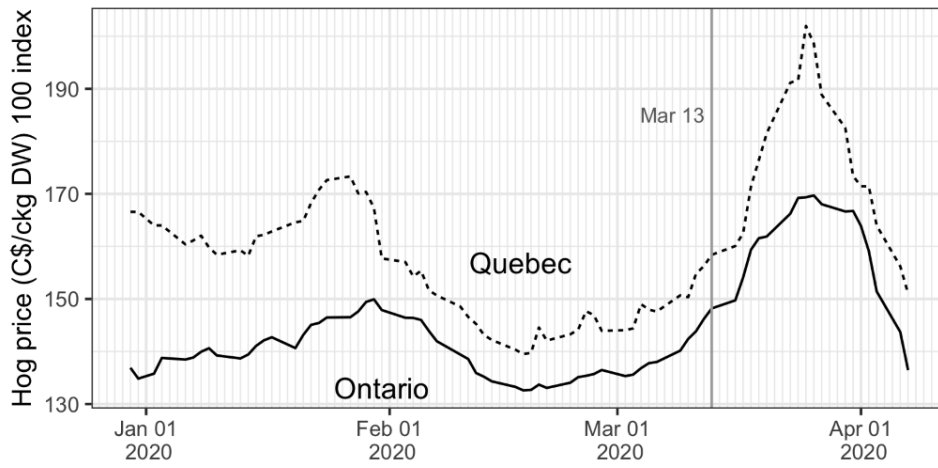
USDA. (2020). Canadian Live Animal Imports by State of Entry: Data for week ending 03/28/20. *USDA Livestock, Poultry & Grain Market News, St. Joseph, MO*.

www.ams.usda.gov/mnreports/WA_LS635.txt



Data source: Bank of Canada

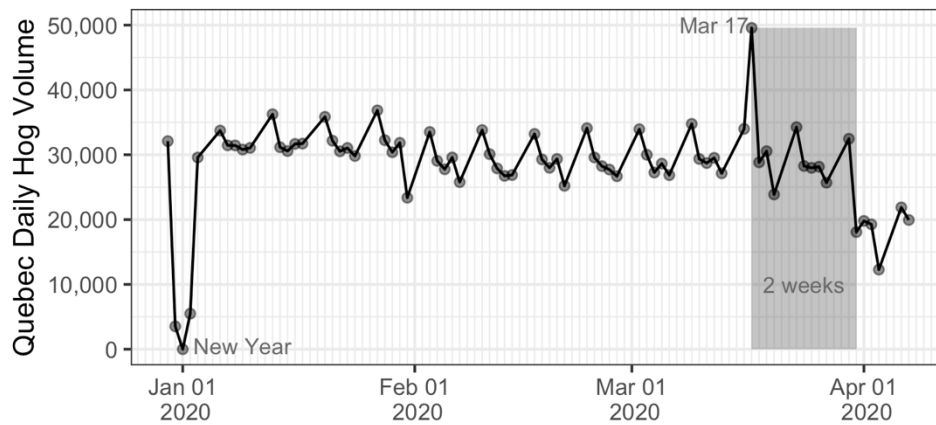
Figure 1. Canada/US exchange rate
Source: Bank of Canada (2020)



Data source: Ontario Pork mandatory price report

Figure 2. Hog prices, Ontario and Quebec

Source: Ontario Pork (2020)



Data source: Ontario Pork mandatory price report

Figure 3. Quebec daily hog volume
Source: Ontario Pork (2020)