

CERESSYS

**ASSESSMENT OF THE ECONOMIC CONTRIBUTION
OF AGRICULTURAL AND AGRI-FOOD EXPORTS
TO THE CANADIAN ECONOMY.**

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KEY FINDINGS

Export exposure of Canadian farms and farmland

- 90% of all Canadian farms rely on exports, 80% of commercially-oriented farms.
- Estimated equivalents of 65% of the cultivated area and 40% of pasture land in Canada are exported by the agricultural and food processing sectors.

Employment

- CAFTA's members represent 352,000 direct jobs in agriculture, food and beverage manufacturing combined.
- CAFTA's members represent 352,000 direct and indirect jobs in agriculture, along with 588,000 direct and indirect jobs in food and beverage manufacturing.
- 130,000 jobs depend on agricultural exports.
- 182,000 jobs depend on food and beverage manufacturing exports.
- 43% of the direct jobs in crop production are export-dependent, 23% in food and beverage manufacturing.
- An increase of 100 million dollars of gross exports in agriculture would generate 999 new jobs.
- An increase of 100 million dollars of gross exports in food manufacturing would generate 880 new jobs.
- An increase of 100 million dollars of gross exports in beverage manufacturing would generate 539 new jobs.

GDP / Value-Added

- CAFTA's members represent about two third of the direct agri-food GDP (agriculture, food and beverage manufacturing) with a direct GDP worth more than 34 billion dollars.
- CAFTA's members generated a direct and indirect GDP worth 30.5 billion dollars for agriculture and 65.5 billion dollars for food and beverage manufacturing.
- 33% of the agriculture value-added is directly attributable to exports.
- 22% of food and beverage manufacturing value-added is directly attributable to exports.
- Exports by agriculture generated 14 billion dollars of direct and indirect value-added.
- Exports by food and beverage manufacturing generated 16 billion dollars of direct and indirect value-added.
- An increase of 100 million dollars of gross exports in agriculture would generate 83 million dollars additional direct and indirect GDP.
- An increase of 100 million dollars of gross exports in food manufacturing would generate 81 million dollars additional direct and indirect GDP.
- An increase of 100 million dollars of gross exports in beverage manufacturing would generate 44 million dollars additional direct and indirect GDP.

Sectorial comparison

- The direct and indirect economic contribution (value-added and jobs) of the export-related component of the agriculture, food and beverage manufacturing sector combined is similar to the direct economic contribution of the universities sector.
- The direct economic contribution (value-added and jobs) of the export-related component of the agriculture, food and beverage manufacturing sector combined is similar to the direct economic contribution of the financial investment services sector.

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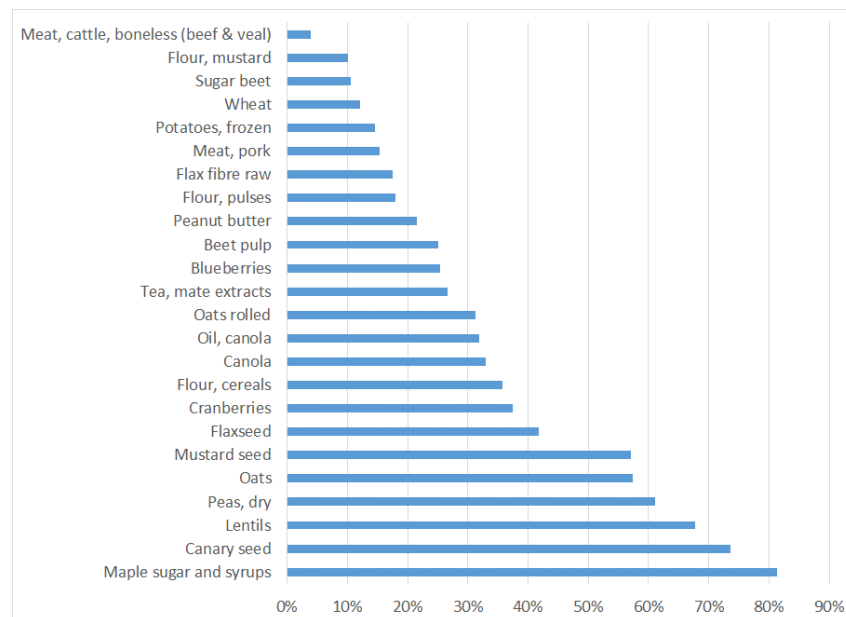
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I. INTRODUCTION

Agriculture and food processing are two important sectors for the Canadian economy. The direct contributions to the Canadian GDP of the primary agriculture and food processing sector were respectively 18.7 and 28.3 billion dollars in 2014, representing 1.1% and 1.7% of the total gross domestic product (GDP) of Canada. In terms of employment, 275,000 persons are employed in primary agriculture, 288,000 in food processing, representing 1.5% and 1.6% of all jobs in Canada. Agriculture contributes significantly to Canada's trade balance with a positive trade balance of 23 billion dollars in 2015 (Canada's trade balance for goods was negative by 11.5 billion dollars that year).

By many measures, Canada plays an important role in international trade of agricultural and food products. In 2014, it was the fifth exporter of agricultural and agri-food products commodities in the world. For some products, Canada is a major exporter with more than one fifth of global exports (volume) such as canola, oats, pulses, mustard, flour, cranberries or maple syrup (see Graph 1).

Graph 1. Canadian share of global exports (volume) for selected agricultural and agri-food products in 2013.



Source: FAOStat

International trade is crucial for the economy of the Canadian agriculture as 58% of its total value go through exports. The share is 28% for the Canadian food manufacturing sector. So, at first glance, there is a lot at stake in maintaining and improving the international competitiveness of the Canadian agriculture and food processing sector, notably by signing and implementing preferential free-trade agreements with key trading partners. Notwithstanding their importance, these agreements remain subject to much debate.

In order to have an evidence-based conversation, the Canadian Agri-Food Trade Alliance (CAFTA)* has mandated CER-ESSYS to provide more detailed estimates of the exposure of the Canadian agriculture to exports, and of the economic effects of agriculture and agri-food exports on the Canadian economy. CAFTA has also mandated CERESSYS to estimate the contribution of CAFTA member industries to the gross value-added account and to employment.

In the first section, we will gauge the depth of the exposure to exports of the Canadian agriculture. To do so, we will estimate the share of Canadian farms whose economy relies on exports and the share of Canadian farmland valued through exportations of agricultural and food products.

In a second section, we will first estimate the contribution of CAFTA's members to the Canadian economy. Then, we will estimate the economic contribution of agricultural and agri-food exports to the Canadian economy in terms of gross value-added and employment, including the economic impact of an incremental increase of agricultural and agri-food exports.

Finally, we will compare these estimates for the agriculture and food processing sector to other sectors of the Canadian economy and discuss these results by assessing the significance of the contribution of agricultural and agri-food exports to the Canadian economy.

* The Canadian Agri-Food Trade Alliance (CAFTA) is a coalition of national and regional organizations that support a more open and fair international trading environment for agriculture and agri-food. CAFTA's members: Canola Council of Canada, Canadian Cattlemen's Association, Pulse Canada, Soy Canada, Canadian Pork Council, Canadian Meat Council, Canola Growers Association, Grain Growers of Canada, Cereals Canada, Canadian Sugar Institute, Alberta Cattle Feeders Association, National Cattle Feeders Association, Barley Council of Canada. Based on domestic exports data for 2015, CAFTA's members account 48 billion dollars of exports, representing 80% of the total value of Canadian agricultural and agri-food products exports.

II. EXPOSURE TO EXPORTS OF THE CANADIAN FARMS AND FARMLAND

1. At least 8 out of 10 Canadian farms rely on exports.

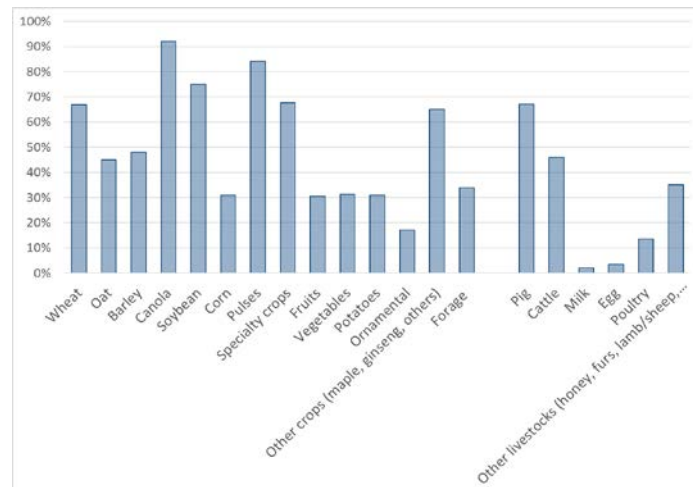
In order to gauge to what extent the economy of Canadian farms does rely on export, we will estimate the share of the farm operating revenues that is made of exports, hereafter called exposure to export, and compare it to the net farm operating income, using data from Statistics Canada. We will consider that a farm is deemed to rely on exports if its export exposure is greater than its net operating income.

Revenues from farm sales are made of two components: price and volume. Most of the prices of farm products in Canada are entirely or partly determined by international markets, either because most of the production is exported, or because benchmark prices are set outside Canada. This is the case for oilseeds, grain, pulses, hog and pork, cattle and beef. With respect to the vegetables and fruits industries, exports and imports are both key drivers of prices, especially within the NAFTA area. The maple industry stands out as the international benchmark price is set in Canada, more specifically in Quebec, but almost all its production is exported.

As far as the supply-managed industries are concerned, the direct exposure to international markets is low by design and their influence on prices is. However, in the case of the Canadian dairy industry, international markets do somewhat influence the Canadian milk price and the economy of Canadian dairy farms.

Consequently, the price component can be considered to be essentially exposed to international markets. So, in order to estimate exposure to export, we will start by determining the share of the production (volume) that is exported for the main agricultural products or groups of agricultural products. We will use the latest three-year average or annual data available. We will account for both direct exports of agricultural products, and indirect exports after first-level processing (meat packing, oil crushing, malting, milling, dairy processing, feed, etc.). We recognize that the export share of production may be slightly underestimated as we do not extend our estimate to highly-processed food products. The results of this estimate are presented in Graph 2.

Graph 2. Estimated exposure to export of the main farm production in Canada (average 2011–2013)



Sources: author's calculation based on data from Statistics Canada, Agriculture and Agri-food Canada, Canadian Dairy Commission, Canola Council of Canada, Soy Canada, Malting Industry Association of Canada, Canadian Oilseed Processors Association

The second step is to determine the distribution of the farms revenues between the different agricultural products in order to obtain the export exposure using a weighted average as follows:

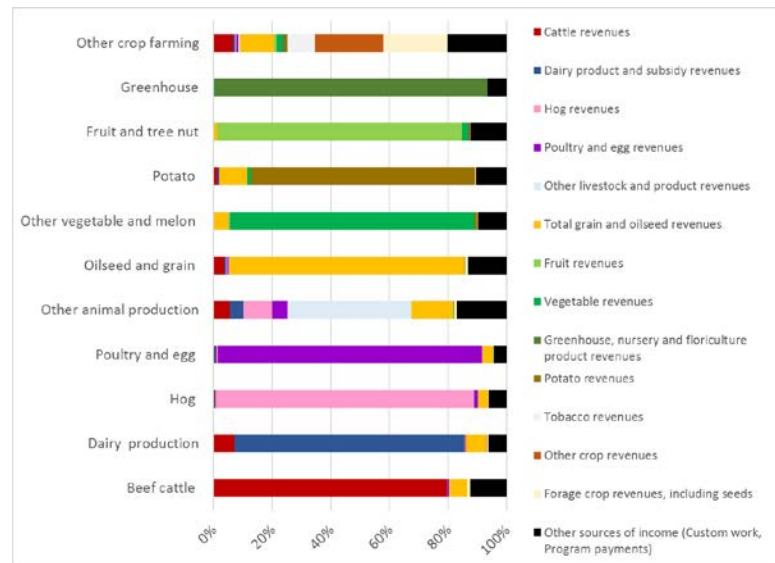
$$\text{Exposure to exports} = \sum \{ [\% \text{ revenues for products } M] \times [\% \text{ production of } N \text{ exported}] \}.$$

Ideally, we would have use individual data from the coming or past Agricultural Census, or at least from the Farm Financial Survey. However, this was not possible within the frame of this project. Instead, we will use aggregated data from Statistics Canada about the average detailed operating revenues and expenses by farm type (Cansim Table 002-0044, based on Agriculture Taxation Data program). The revenues structure for each farm type is presented in Graph 3.

We will assume that this average represents the whole population of farms of each type in terms of revenue's structure, meaning that when the average farm of a given type is deemed to rely on exports, then all farms of that type are deemed to rely on exports too. That assumption may be questionable considering the variability between farms within each farm type. However, we think it will still provide a useful indicator of the number of farms whose economy relies on export for success.

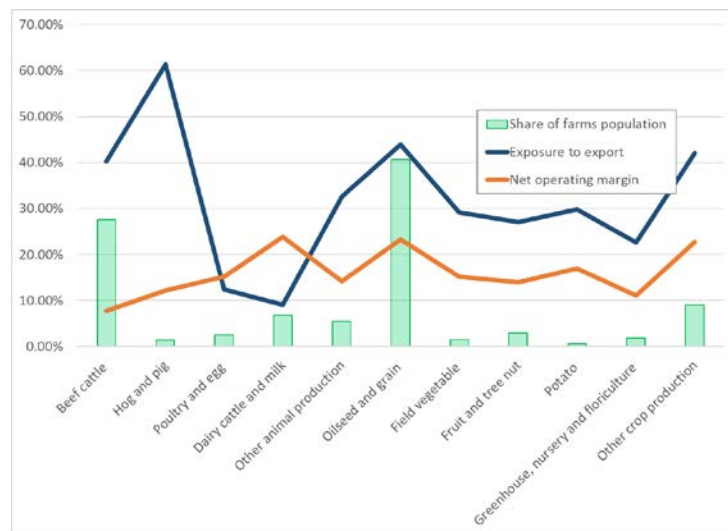
Based on data presented in graphs 1 and 2, we have estimated that about 90% of farms in Canada rely on exports as only farms in supply-managed sectors have their exposure to export being below their average net operating margin (Graph 4).

Graph 3. Distribution of farm revenues by sources and by industry (Average 2011-2013)



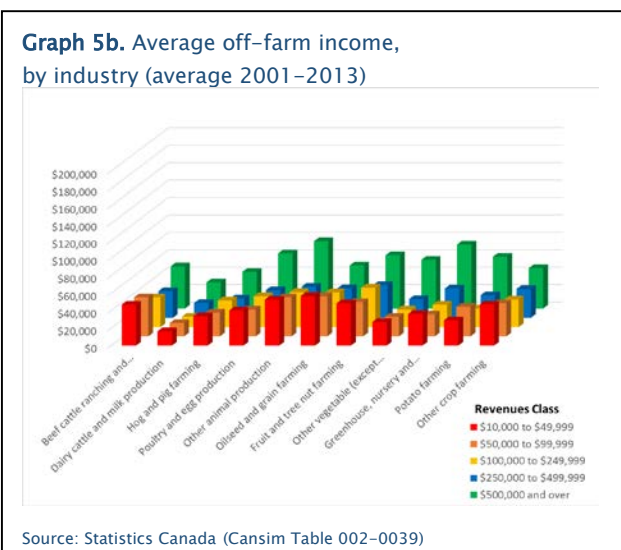
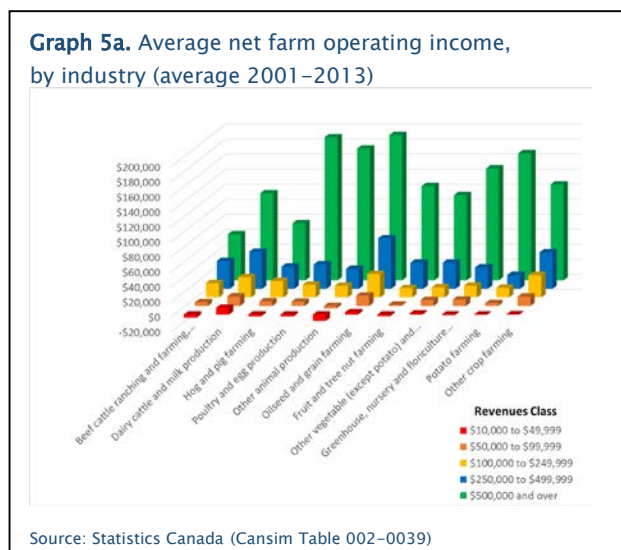
Source: calculations by the author, based on Statistics Canada

Graph 4. Exposure to export and net farm operating income, average by industry (average 2011-2013)



Source: calculations by the author, based on Statistics Canada

We will complement our analysis by a discussion on the significance of farm net operating income in the farm household income structure, based on data from Statistics Canada about the average total income of farm operators by farm type and revenue class (Cansim Table 002-0039). That will lead to nuance that previous estimate by pointing out that many farms across the different sectors do not actually rely on their farm operating income with respect to the farm household economy (Graph 5a and 5b), thus reducing the significance of the reliance on exports. Consequently, the reliance on exports may be somewhat weaker than indicated by our first analysis, notably for the farms with less than \$100,000 of farm gross revenues. They represent about half the total number of farms. However, we acknowledge that some of this off-farm income may have an export content if it is related to activities involved in export of agricultural or agri-food products.



If we were to consider only farms with more than 100,000 dollars of farm gross revenues, we would estimate that 80% of commercially-oriented farms rely on export.

Key finding

- 90% of all farms in Canada rely on exports, 80% of commercially-oriented farms.

2. Most of the Canadian agricultural land is valued through exports.

For direct export of field crops, we have used the area seeded, the production in volume along with export in volume. This gives us a direct area equivalent of exports. Then we have assessed the export content of domestic use of crops, including use as feed for beef and hog (for each crop, we have estimated the share of utilization as feed by hog and cattle farms), along the same line than in the previous section. We have also estimated the export content of cultivated areas for potato and field vegetables. For pasture land, we have taken the export content for the beef industry, assuming cattle farms are using 85% of all Canadian natural pasture land.

Key finding

- Estimated equivalents of 65% of the cultivated area and 40% of pasture land in Canada are exported by the agricultural and food processing sectors.

III. ECONOMIC EFFECTS OF AGRICULTURAL AND FOOD EXPORTS ON THE CANADIAN ECONOMY

1. Methodology

a) CAFTA membership and industry exclusion

We have used the correspondence shown in appendix 1 between CAFTA'S members and the North-American Industry Classification System.

Tobacco manufacturing and wineries are not included in the present report.

Readily available data from Statistics Canada do not discriminate enough the industry classification to identify precisely CAFTA member's industries. We are limited to the NAISC-4 digits classification when 6-digits would have been necessary. To estimate CAFTA share in primary agriculture, we have assumed that 90% of crop production is covered by CAFTA. When other sources are available, we have excluded the dairy and poultry production, respectively by using the ÉcoRessources' report on the dairy Industry (2015), and the Infometrica's report on the poultry and egg industry (2011).

To estimate CAFTA's share in food manufacturing, we have excluded dairy and seafood processing along with vegetables processing too. For poultry processing included in meat processing, we have estimated its share through other sources (mainly the economic impact assessment of the poultry industry made by Infometrica in 2011).

b) Estimating the economic effect on GDP and employment

Within the frame of this mandate, we have limited our research to existing studies and publicly available data from Statistics Canada. There have been many studies estimating the economic impact of the agricultural or food processing sector, either at aggregated levels or provincially or by industry (see box 1).

Only a couple of these studies address specifically the economic effect of exports: George Morris Centre for pork export (2012), MNP for soybean exports (2016). So, in order to estimate the overall impact of agricultural and agri-food export, we would have had to generate our own estimate by using the Statistics Canada, System of National Accounts, Canadian Input-Output Model for each industry. Unfortunately, such an approach did not fit the frame of this project.

Our analysis will be based on data published by Statistics Canada in the table Cansim 381-0032 (Value-added exports, by industry) which will be our primary source. These data originate from an Input-Output model approach, identical to the one used in the other studies.

This type of analysis is widely used as its outcome allows for easy comparison. It provides useful indication about the direction of change due to shocks to an economic system. Nonetheless, one should keep in mind that multipliers which are based on the assumption of fixed technological coefficients, not accounting for economies of scale, constraint capacities, technological change, externalities, or price changes. This makes multiplier analysis less accurate for estimating long-term and large impacts as the technological regime and related input-output technological coefficients become obsolete.

Box 1. Selected studies about the economic impact of the agricultural and agri-food sectors in Canada.

Agricultural sector: CAPI (2005)

Canola industry: LMC International (2013)

Cattle/beef industry: Kulshreshtha et al. (2012)

Dairy industry: ÉcoRessources (2015)

Chicken industry: Infometrica (2011)

Ontario Farm sector: JRG Consulting (2013)

Soy industry: MNP (2016)

Pork industry: Georges Morris Centre (2012)

Wine industry: Frank, Rimerman + Co (2013)

Note that we have limited our analysis to direct and indirect effects while some studies also include induced effects (spending by households directly or indirectly related to an industry) which tend to overestimate the economic impact because of the rigidity of the underlying assumptions about labour income and consumption patterns.

Note also that while the direct effect of different sectors can be added, indirect effects are not additive because of the possibility of double-counting. Consequently, presentation of the results about the indirect effect will be separated for agriculture and food manufacturing.

We have used the national economic multiplier provided by Statistics Canada for 2010 (latest estimate publicly available). For food and beverage manufacturing (NAICS 311 and NAICS 3121), the multipliers available are at the sub-sector level (NAICS 3111 to 3119, 31211 to 31214). In the absence of other references to set our multiplier for food and beverage manufacturing, we have opted to make an average of the multipliers of the sub-sectors which may result in overestimating the multipliers somewhat.

Table 1 summarizes the values for agriculture, food and beverage manufacturing.

Table 1. National economic multipliers – Agriculture and food manufacturing.

		GDP	Employment
Agriculture	Simple (Direct + indirect)	0.85	9.99
	Type I	2.46	1.76
Crop excl. greenhouses	Simple (Direct + indirect)	0.85	8.07
	Type I	1.87	1.90
Animal production	Simple (Direct + indirect)	0.88	13.89
	Type I	4.40	2.11
Food manufacturing	Simple (Direct + indirect)	0.76	8.8
	Type I	2.91	3.35
Beverage manufacturing	Simple (Direct + indirect)	0.78	5.39
Excl. wineries and distilleries	Type I	1.74	2.55
Simple multipliers are expressed per \$1 of exogenous industry output shock, per million dollars of output for jobs. Type I multipliers express the simple multipliers as a multiple of the direct effects.			

A simple multiplier measures the direct and indirect effect of a marginal change in output, assuming the economic system represented in the underlying input/output model is constant. In other words, the change in output does not impact neither the nature of the relationships between the different sectors nor the terms of the productivity within one sector.

A type I multiplier measures the effect of a direct increase in GDP or employment on additional direct and indirect GDP or employment. For instance, with a type I multiplier of 1.60, 100 direct jobs would lead to 60 indirect jobs for a total of 160 direct and indirect jobs.

2. Economic contribution of CAFTA's member industries

a) *Contribution to employment*

According to Agriculture and Agri-Food Canada, the total number of direct jobs in food manufacturing was 288,000 in 2014; 275,000 in agriculture. The following sectors have been excluded from the estimate of the CAFTA's share:

- Primary agriculture: dairy, poultry, egg, greenhouse, vegetables and fruits;
- Food manufacturing: dairy, poultry, egg, vegetables and fruits, seafood, wineries.

Based on table 2, the estimate for CAFTA members' industries is 172,000 direct jobs in agriculture and 180,000 in food and beverage manufacturing, accounting for 62% of direct jobs in these sectors.

Table 2. Estimate of direct jobs in agri-food manufacturing and agriculture for CAFTA sectors.

	Food and Beverage	Agriculture
All sectors (2014)	288,300	275,300
Dairy (2015)	23,000	46,000
Chicken (2011)	14,000	10,000
Egg (2011)	13,000	2,000
Vegetables – Fruit, incl. greenhouses (2012)	20,000	42,000
Seafood (2012)	33,000	n/a
Wineries (2011)	4,000	3,000
Tobacco (2012)	1,400	n/a
Non-CAFTA industries	108,400	103,000
CAFTA's members industries	179,900	172,300

Sources: Industry Canada, Agriculture and Agri-Food Canada, ÉcoRessources, Infometrica, Frank Rimerman + Co (2013)

We assume that the CAFTA membership is relatively representative of the Canadian agriculture as a whole. So, using a type I multiplier of 2.05, we have estimated that CAFTA's members represent 352,000 direct and indirect jobs in agriculture. For food and beverage manufacturing, we have used a multiplier of 3.27[†], resulting in an estimate of 588,000 direct and indirect jobs for CAFTA's members industries.

b) *Contribution to GDP*

Based on recent GDP data, the direct GDP generated by CAFTA industries as identified in appendix 1 can be estimated at 34.5 billion dollars, with 12 billion dollars for primary agriculture and 22.5 billion dollars for food and beverage manufacturing. By applying type I multiplier for GDP of 2.46 for agriculture and 2.91 for food and beverage manufacturing, we can estimate the direct and indirect GDP linked to CAFTA's member industries at 29.5 and 65.5 billion dollars respectively.

Key findings

- CAFTA's members represent 357,000 direct jobs in agriculture, food and beverage manufacturing.
- CAFTA's members represent 352,000 direct and indirect jobs in agriculture, 588,000 direct and indirect jobs in food manufacturing.
- CAFTA's member industries represent about two third of the direct agri-food GDP (agriculture, food and beverage manufacturing) with a direct GDP worth more than 34 billion dollars.
- CAFTA's member industries generated a direct and indirect GDP worth 29.5 billion dollars for agriculture and 65.5 billion dollars for food and beverage manufacturing.

[†] Weighted average of the multipliers for food (90%) and beverage (10%).

3. Economic effects of agricultural and agri-food exports

a) *Effect of exports on employment*

In our primary source (Statistics Canada's Cansim 381-0032), the level of industry segmentation does not allow to differentiate CAFTA-members' industries. Table 3 shows an estimate for the number of direct jobs for each industry, along with direct jobs attributable to exports and direct and indirect jobs attributable to the industry's export. The most recent year for which these data are available is 2011.

Table 3. Estimate of jobs attributable to export from agriculture and food manufacturing in Canada (2011)

	Direct jobs	Direct jobs – Export	Direct + Indirect jobs – Export
Crop production (incl. greenhouses)	134,435	56,678	104,653
Animal production	129,265	11,312	23,992
Agriculture	263,700	67,990	128,645
Food manufacturing	246,545	60,451	174,221
Beverage manufacturing (incl. wineries)	33,280	3,578	7,431

Source: author's calculation based on Statistics Canada

Exports for Animal Production are essentially made of live animal exports as exports of meat products are accounted under Food manufacturing. Jobs are understood as full-time equivalents. For agriculture, this would explain the difference between direct jobs and the number of farm operators of 293,925 including 92,545 (31%) working less than 20 hours per week.

Key findings

- Close to 130,000 jobs depend on agricultural exports.
- 182,000 jobs depend on food and beverage exports.
- 43% of direct jobs in crop production are export-dependent
- 23% of direct jobs in food and beverage manufacturing are export-dependent.

b) *Effect of exports on GDP*

The effect of exports on the value-added account for different industries is also shown in Statistics Canada's Cansim 381-0032. Value-added export is calculated by Statistics Canada as gross exports minus imports of intermediary inputs used in exports. Value-added is a proxy for the GDP as GDP equals value-added plus taxes on products minus subsidies on products. The results are shown in table 4.

Table 4. Estimate of value-added attributable to export from agriculture, food and beverage manufacturing in Canada (2011)

\$ million	Value-added	Direct Value-added of Export	(Direct + Indirect) Value-added of Export
Crop production (incl. greenhouses)	16,370	7,051	12,098
Animal production	6,033	528	1,785
Agriculture	22,403	7,579	13,883
Food manufacturing	22,066	5,220	15,338
Beverage manufacturing (incl. wineries)	5,014	500	852

Source: author's calculation based on Statistics Canada

Key findings

- 33% of the agriculture value-added is directly attributable to exports.
- 22% of the food and beverage manufacturing value-added is directly attributable to exports.
- Exports by agriculture generated \$14 billion dollars of direct and indirect value-added.
- Exports by food and beverage manufacturing generated \$16 billion dollars of direct and indirect value-added.

c) Multiplier effect of exports on GDP and employment

In our analysis, we assume that any increase in exports results from a net increase in total output, and is not a substitution for a reduced use in the domestic market. So, the multiplier effect on GDP and employment of agri-food export is estimated assuming that additional exports lead to a marginal increase in output.

- GDP multiplier

Based on Statistics Canada data (Cansim 381-0032), we have estimated the multiplier by calculating the ratio (Variation Value-Added export direct+indirect)/(Variation export) and averaging the value over the years available. This must be taken as a rough estimate as there are only 3 years available (i.e. 2 variations) for aggregated data. Our estimates of 0.83 for agriculture and 0.81 for food manufacturing are consistent with the overall simple multipliers (Table 1). Our estimate for beverage manufacturing comes at 0.44, significantly lower than the overall simple GDP multiplier (Table 1).

- Employment multiplier

The employment multiplier cannot be estimated as the GDP multiplier because the link between variation in jobs and export is less direct. Instead, we will rely on the standard simple multiplier (see table 1), assuming that any increase in output driven by export markets has the same job content than an increase in output driven by the domestic market. We acknowledge that the job content of an increased output driven by export may be specific in the way some sectors are likely to be marginally more affected (logistics, for instance), but we think our estimate is still valid.

Key findings

- An increase of \$100M of gross exports in agriculture would generate \$83M additional direct and indirect GDP.
- An increase of \$100M of gross exports in food manufacturing would generate \$81M additional direct and indirect GDP.
- An increase of \$100M of gross exports in beverage manufacturing would generate \$44M additional direct and indirect GDP.
- An increase of \$100M of gross exports in agriculture would generate 999 new jobs.
- An increase of \$100M of gross exports in food manufacturing would generate 880 new jobs.
- An increase of \$100M of gross exports in beverage manufacturing would generate 539 new jobs.

IV. DISCUSSION AND CONCLUSION

1. Comparison to other sectors

We have used a single source of data (Statistics Canada, Cansim 381-0032) for comparison purpose in order to guarantee as much consistency as possible.

In terms of employment (Table 5), the number of jobs directly related to exports by agriculture and food manufacturing is greater than the total number of direct jobs in aerospace manufacturing when taken individually. When combined, agriculture and food manufacturing have a number of direct jobs related to export similar to the total number of direct jobs in the postal service and couriers sector.

Table 5. Comparison of the contribution to employment of the export component of agriculture and food manufacturing with selected sectors, 2011.

	Direct jobs	Direct Jobs – Export	Direct + Indirect Jobs – Export
Agriculture	263,700	67,990	128,645
Food manufacturing	246,545	60,451	174,221
Beverage manufacturing	33,280	3,578	7,431
Arts, entertainment and recreation	287,645		
Universities	265,045		
Non-residential building construction	231,600		
Computer systems design and	224,850		
Traveller accommodation	185,855		
Oil and gas engineering construction	179,240		
Financial investment services, funds	162,415		
Postal service, couriers and messengers	122,910		
Aerospace product, parts manufacturing	52,145		

Source: Statistics Canada

The number of direct and indirect jobs related to exports by food manufacturing is similar to the total number of direct jobs in the financial investment services sector or in the traveler accommodation sector or in the oil and gas engineering sector. Combining agriculture and food manufacturing, the number of direct and indirect jobs related to exports is comparable to the total number of direct jobs in universities or in the art, entertainment and recreation sector, greater than in the non-residential building construction sector or computer system design sector.

In terms of value-added (Table 6), the value-added directly related to exports by agriculture and food manufacturing is comparable to the total direct value-added of aerospace manufacturing when taken individually. When combined, agriculture and food manufacturing have a value-added related to exports similar to the direct value-added the financial investment services sector.

Table 6. Comparison of the contribution to value-added of the export component of agriculture and food manufacturing with selected sectors, 2011.

	Value-added	Direct Value-added Export	(Direct + Indirect) Value-added Export
Agriculture	22,403	7,579	13,883
Food manufacturing	22,066	5,220	15,338
Beverage manufacturing	5,014	500	852
Universities	28,125		
Computer systems design	20,874		
Non-residential building construction	19,698		
Oil and gas engineering construction	17,958		
Financial investment services, funds	14,625		
Arts, entertainment and recreation	11,125		
Traveller accommodation	8,779		
Postal service, couriers and messengers	7,158		
Aerospace product, parts manufacturing	6,712		

Source: Statistics Canada

The direct and indirect value-added related to exports by food manufacturing is similar to the direct value-added in the financial investment services sector or greater than of the art, entertainment and recreation sector. Combining agriculture and food manufacturing, the direct and indirect value-added related to exports is comparable to direct value-added of universities, greater than of the non-residential building construction sector or computer system design sector.

2. Agricultural and agri-food exports are important contributors to the Canadian economy.

Exports are an essential driver of the economy of many Canadian farms as between eight to nine out of ten farms do rely economically on exports. Besides, a majority of the Canadian agricultural land is value through exports. Exports are a defining element of the Canadian farming identity.

In the meantime, agricultural and agri-food exports make a significant contribution to the Canadian economy in terms of both employment and GDP. The specific contribution of agricultural and agri-food exports is similar to the direct contribution of entire sectors such as Universities, Financial investments services, Art-Entertainment-Recreation, and much greater than the contribution of the Aerospace manufacturing sector.

Canada is a trading nation, and its agriculture and agri-food sectors are key players. Trade agreements are crucial to their competitiveness as far as they provide preferential access to international markets. The commitment to international trade must extend beyond negotiating and signing trade agreements. It must be sustained both at the government and business levels because competitiveness is dynamic, relative and complex. How the Canadian agriculture and agri-food sector will face these challenges will greatly determine their future successes.

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VI. APPENDIX

Appendix 1. CAFTA's members and their corresponding industries in the North-American Industry Classification System.

CAFTA's member	Primary Agriculture	Food and beverage manufacturing
Canola Council of Canada	NAICS 111110 – Soybean Farming	NAICS 311111 – Dog and Cat Food Manufacturing
Canadian Cattlemen's Association	NAICS 111120 – Oilseed (except Soybean) Farming	NAICS 311119 – Other Animal Food Manufacturing
Pulse Canada	NAICS 111130 – Dry Pea and Bean Farming	NAICS 311211 – Flour Milling
Soy Canada	NAICS 111140 – Wheat Farming	NAICS 311214 – Rice Milling and Malt Manufacturing
Canadian Pork Council	NAICS 111150 – Corn Farming	NAICS 311221 – Wet Corn Milling
Canadian Meat Council	NAICS 111160 – Rice Farming	NAICS 311224 – Oilseed Processing
Canola Growers Association	NAICS 111190 – Other Grain Farming	NAICS 311225 – Fat and Oil Refining and Blending
Grain Growers of Canada	NAICS 111930 – Sugar-Cane Farming	NAICS 311230 – Breakfast Cereal Manufacturing
Cereals Canada	NAICS 111999 – All Other Miscellaneous Crop Farming	NAICS 311310 – Sugar Manufacturing
Canadian Sugar Institute	NAICS 112110 – Beef Cattle Ranching and Farming, including Feedlots	NAICS 311320 – Chocolate and Confectionery Manufacturing from Cacao Beans
Alberta Cattle Feeders Association	NAICS 112210 – Hog and Pig Farming	NAICS 311330 – Confectionery Manufacturing from Purchased Chocolate
National Cattle Feeders Association	NAICS 112991 – Livestock Combination Farming	NAICS 311340 – Non-Chocolate Confectionery Manufacturing
Barley Council of Canada		NAICS 311410 – Frozen Food Manufacturing
		NAICS 311610 – Animal Slaughtering and Processing
		NAICS 311611 – Animal (except Poultry) Slaughtering
		NAICS 311614 – Rendering and Meat Processing from Carcasses
		NAICS 311811 – Retail Bakeries
		NAICS 311814 – Commercial Bakeries and Frozen Bakery Product Manufacturing
		NAICS 311821 – Cookie and Cracker Manufacturing
		NAICS 311822 – Flour Mixes and Dough Manufacturing from Purchased Flour
		NAICS 311823 – Dry Pasta Manufacturing
		NAICS 311830 – Tortilla Manufacturing
		NAICS 311919 – Other Snack Food Manufacturing
		NAICS 311930 – Flavouring Syrup and Concentrate Manufacturing
		NAICS 311990 – All Other Food Manufacturing
		NAICS 312110 – Soft Drink and Ice Manufacturing
		NAICS 312120 – Breweries
		NAICS 312140 – Distilleries

