

ECONOMIC & ENVIRONMENT IMPACT ASSESSMENT

Food Manufacturing Industry



ECONOMY



JOBS



ENVIRONMENT

MBS
MANITOBA BUREAU OF STATISTICS



Manitoba 

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Note to Reader:

This report assesses the economic contribution and environmental footprint of the Food Manufacturing industry in Manitoba in 2019. The findings are based on an Input-Output model that utilizes a combination of historical and recent data. Readers should interpret results as estimates.

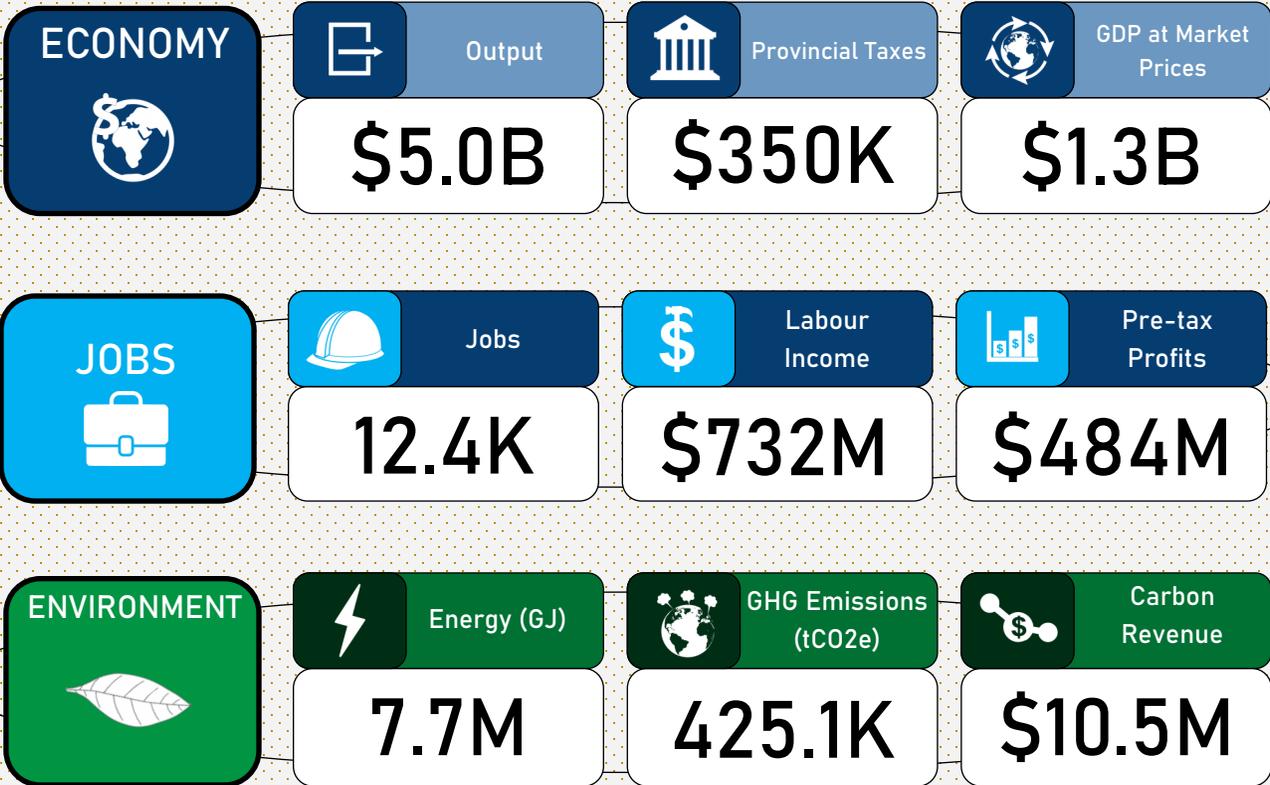
ECONOMIC & ENVIRONMENT IMPACT ASSESSMENT

Food Manufacturing

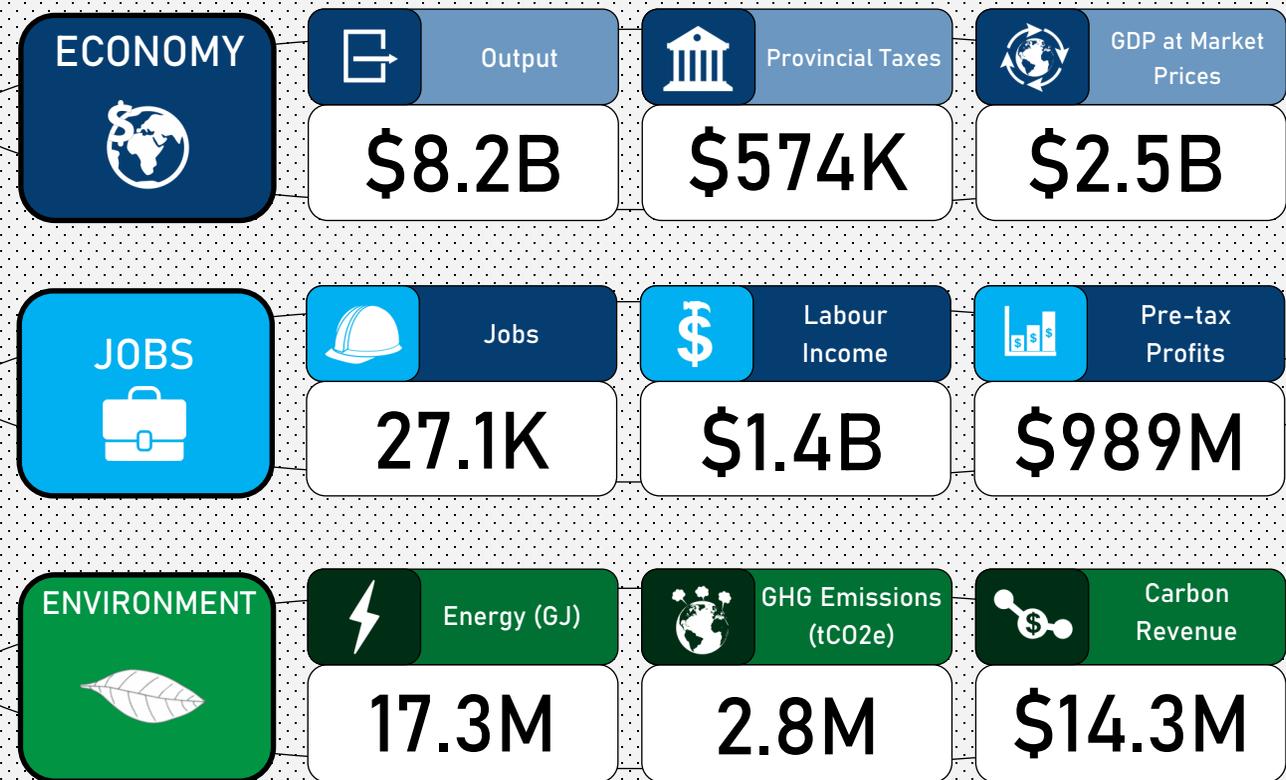
Section 1: Summary

The infographic below provides a snapshot of the direct and total impacts across three core impact areas: economy, jobs, and the environment.

DIRECT IMPACTS

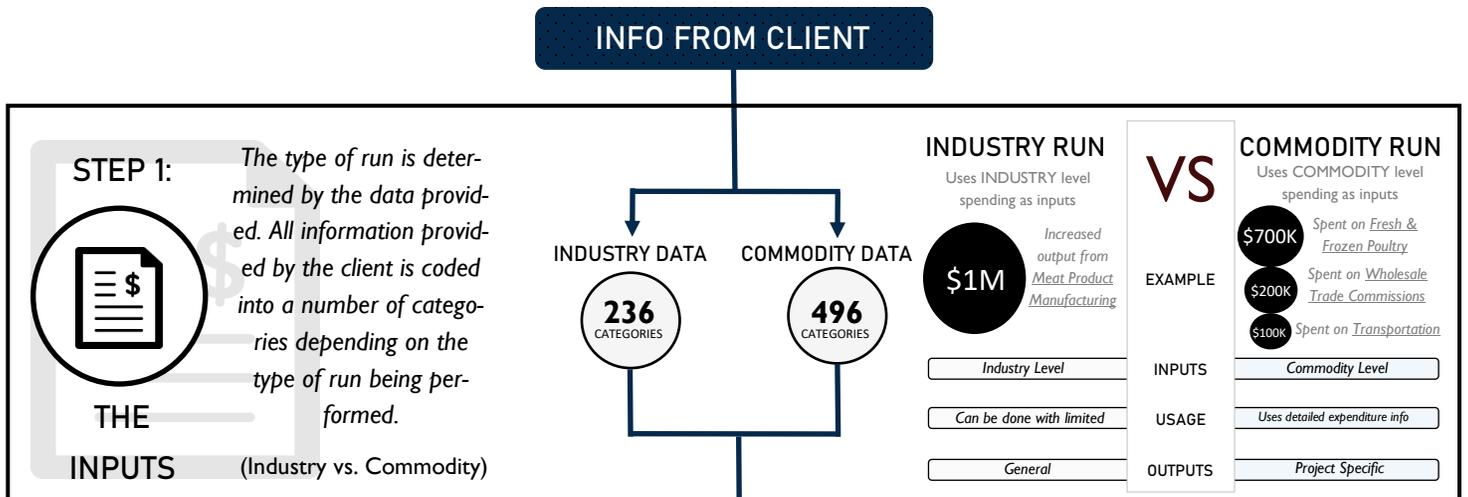


TOTAL IMPACTS

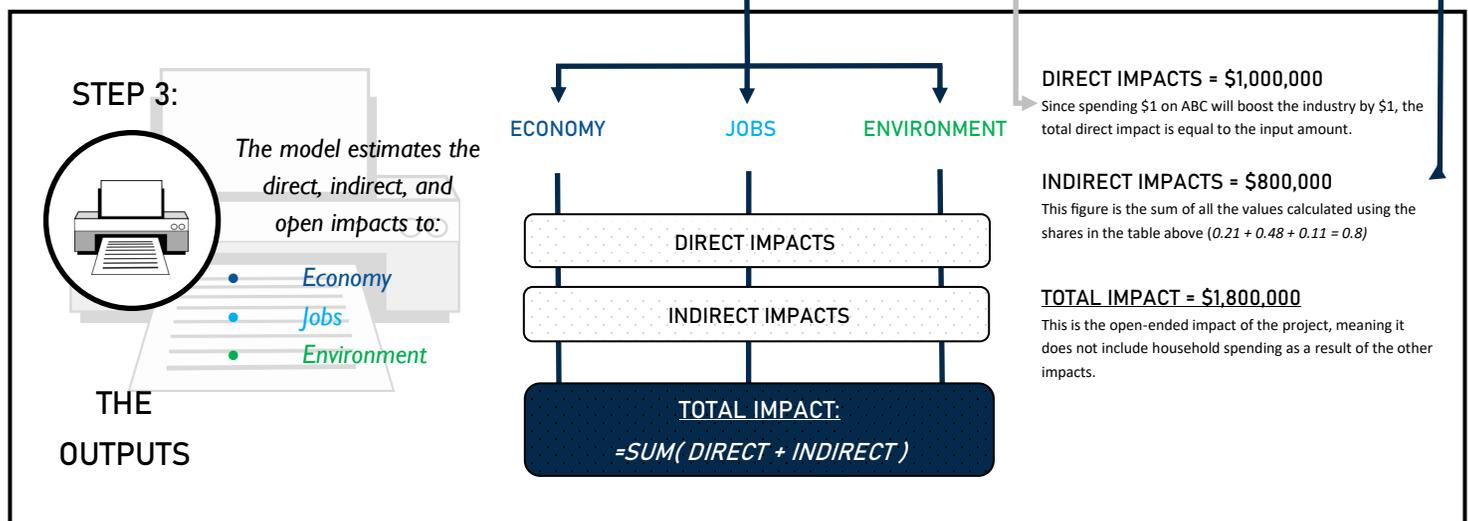
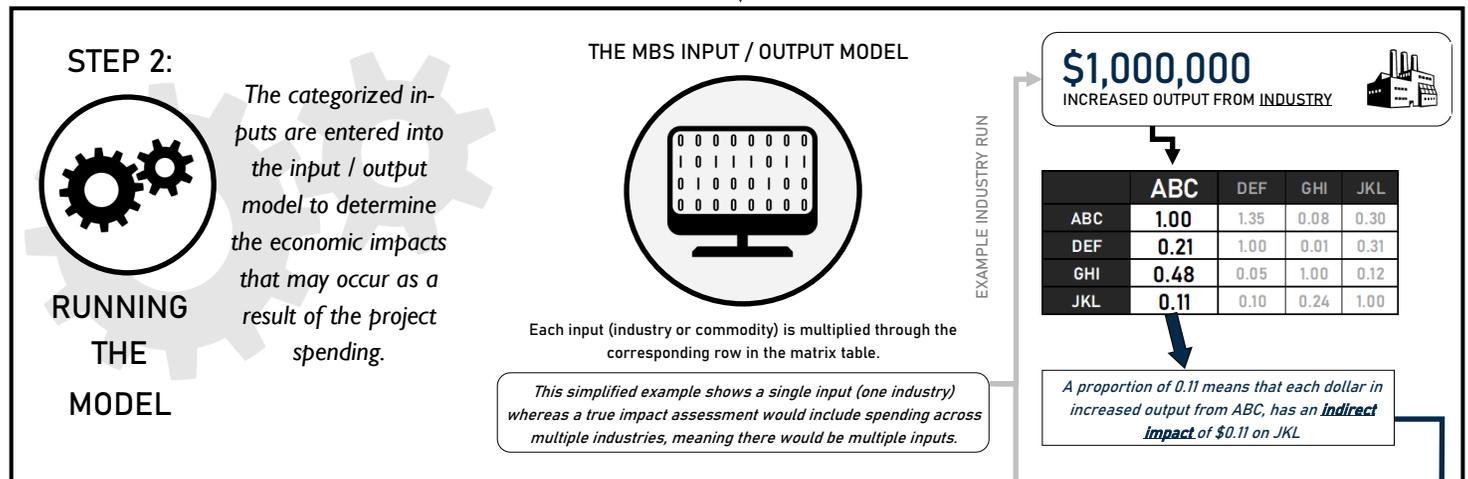


Section 2: MBS MODEL OVERVIEW

The MBS Impact Assessment Model is a tool used to estimate the total footprint that a project, activity, or industry may have on the provincial economy & environment. The model tracks how changes in demand for certain goods and services creates a cascading effect in other inter-related industries.



CATEGORIZED INPUTS



LIMITATIONS OF THE MODEL:

The model should be used only as a general estimate, and is best used to compare different projects or activities
For example: which public investment project should be undertaken

STATIC (AVERAGE-BASED) MODEL

The model is based on averages such as the average cost of commodities, average technology, and the average relationship between industries at a fixed point in time (does not account for supply/demand changing price).

NEW DEMAND ASSUMPTIONS

The model assumes that firms will be able to meet the increased demand simply by increasing production (assumes that any necessary infrastructure already exists and requires no new investment).

LINEAR MODEL

The model assumes that production capacity is always at 100% and any change in demand will fuel an immediate response. Due to these assumptions, the model cannot accommodate for economies of scale.



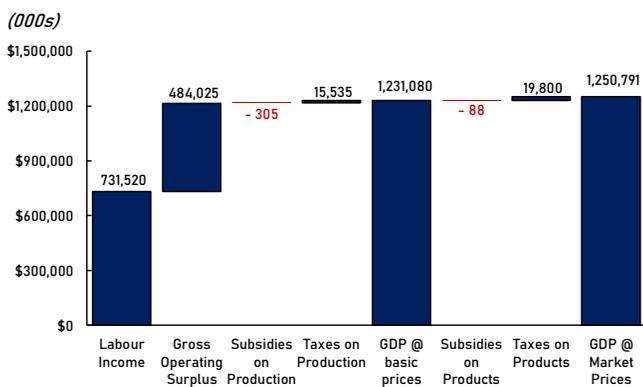
DIRECT IMPACTS

Output



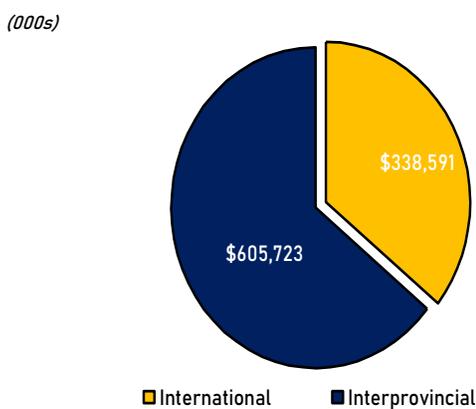
The Food Manufacturing industry's output is an estimated 5.0 billion dollars. Output in our example is equivalent to food manufacturing sales in 2019.

Gross Domestic Product (GDP) by Income



The chart above shows the various income components that contribute to the Food Manufacturing industry's gross domestic product. Estimated GDP at market prices is 1.25 billion dollars.

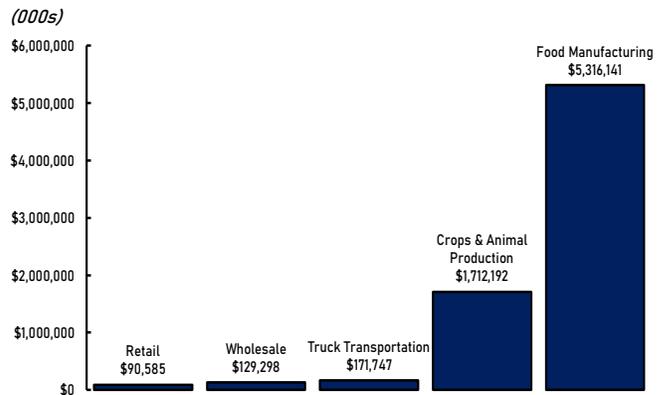
Imports



The Food Manufacturing industry imports goods and services from abroad as inputs in production. The industry imports \$605.7M from international firms and \$338.6M from interprovincial firms.

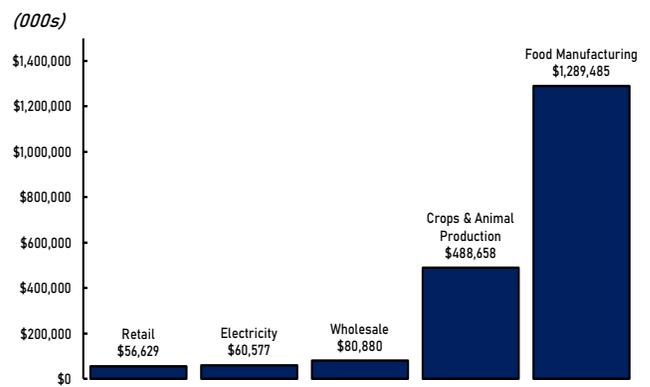
TOTAL IMPACTS

Output: Top 5 impacted Industries



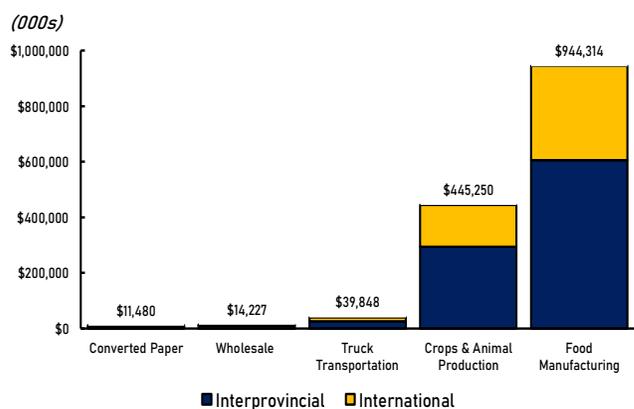
The Food Manufacturing industry's output stimulates additional output from inter-related industries. For example, the Crops & Animal Production industry produces \$1.7 billion of output.

GDP: Top 5 impacted Industries



The chart above shows the additional GDP at market prices generated from the top 5 industries impacted by the Food Manufacturing industry. For example, Crops & Animal Production generates \$489M of GDP.

Imports: Top 5 impacted Industries



The chart above shows the additional imports from the top 5 industries impacted by the Food Manufacturing industry. For example, Crops & Animal Production imports \$445M to supply Food Manufacturing.



DIRECT IMPACTS

Jobs by Gender



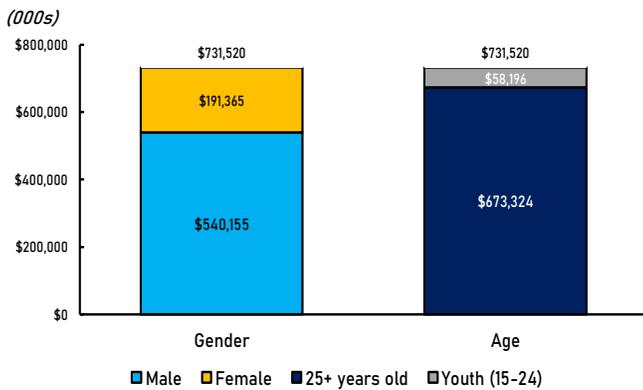
9,136
MALES



3,237
FEMALES

The Food Manufacturing industry directly employs an estimated 12,373 employees., of which 9,136 are males and 3,237 are females. Gender shares are based on historical ratios for Manufacturing.

Labour Income by Gender & Age Group



Food Manufacturing jobs generate an estimated \$731.5 million in labour income. Historical ratios for the manufacturing sector reveal the disposition of labour income by gender and age.

Pre-taxed Profits

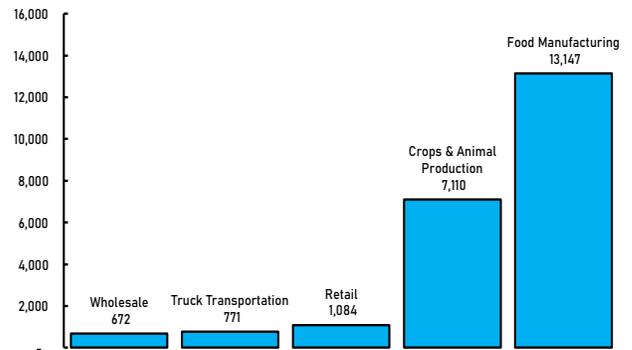


484M
DOLLARS

Food Manufacturing firms generate an estimated \$484 million in pre-taxed profits. Note, for the purpose of this report, pre-taxed profits refers to gross operating surplus.

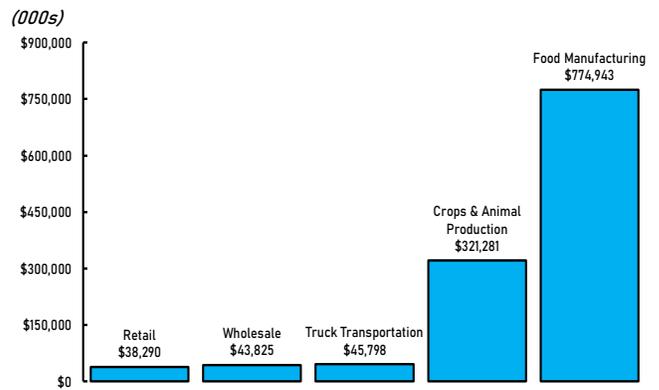
TOTAL IMPACTS

Jobs: Top 5 impacted Industries



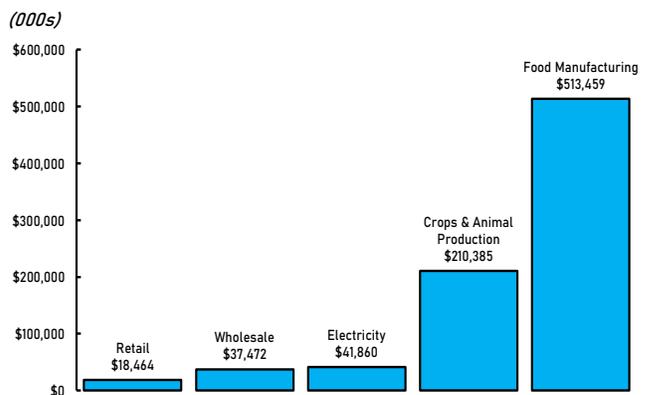
Food Manufacturing stimulates economic activity in related industries, creating jobs in those industries. For example, the Food Manufacturing industry helps to create 7,110 jobs in Crop & Animal Production.

Labour Income: Top 5 impacted Industries



The chart above shows labour income generated in the top five industries impacted by the Food Manufacturing industry. For example, Crops & Animal Production generates \$321 million.

Pre-taxed Profits: Top 5 impacted Industries



The chart above shows pre-taxed profits generated in the top five industries impacted by the Food Manufacturing industry. For example, Crops & Animal Production generates \$210 million.



DIRECT IMPACTS

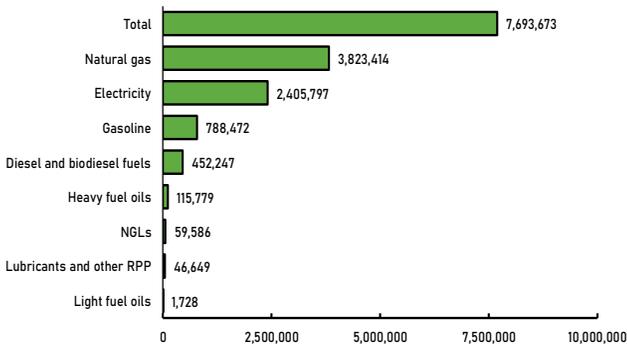
Greenhouse Gas (GHG) Emissions



425K
tCO₂e

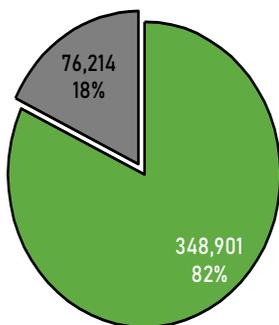
Food Manufacturing generates economic activity and creates jobs - but the industry also releases GHG emissions. The Food Manufacturing industry directly releases an estimated 425K tCO₂e.

Energy Consumption by Energy Type (GJ)



Food Manufacturing consumes a variety of energy sources to power operations. The industry consumes an estimated 7.7 million gigajoules (GJ) of energy, nearly half from natural gas (3.8 million GJ).

Carbon Taxed Emissions

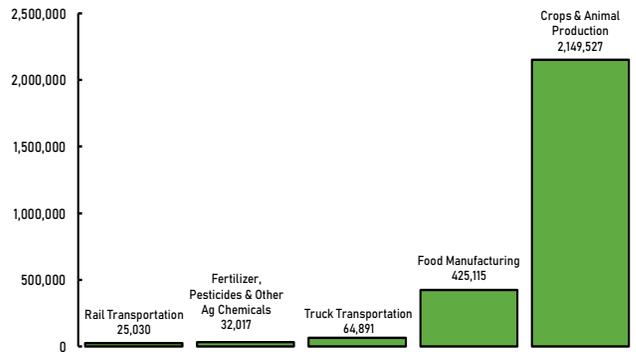


■ Taxed Emissions ■ Non-taxed Emissions

The federal carbon tax is in effect in Manitoba, currently set at \$30 per tonne of emissions. Among the industry's estimated 425K tCO₂e, over 80 percent is subject to the federal tax (348,901 tCO₂e).

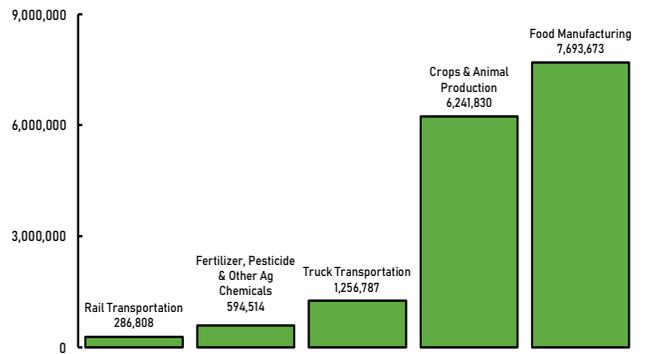
TOTAL IMPACTS

GHG Emissions: Top 5 impacted Industries



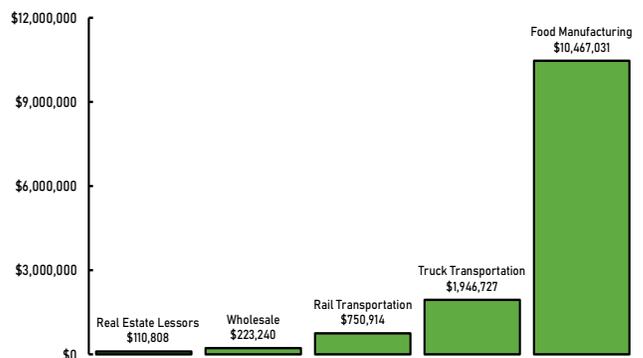
Food Manufacturing stimulates economic activity and jobs in related industries, and also GHG emissions. For example, Crop & Animal Production generates over 2 million tCO₂e to supply Food Manufacturing.

Energy Consumption: Top 5 impacted Industries



The chart above shows the additional energy consumed from the top 5 industries impacted by Food Manufacturing. For example, Crops & Animal Production consumes 6.2 million GJ to supply Food Manufacturing.

Carbon Tax Revenue: Top 5 impacted Industries



The chart above shows the additional carbon tax revenue generated from the top 5 industries impacted by Food Manufacturing. For example, Truck Transportation generates nearly \$2 million in carbon revenue to supply Food Manufacturing.

Section 4:1 Detailed Results

DIRECT IMPACTS

	Sector	Ag., Forestry, Fishing & Hunting	Mining, Oil & Gas	Utilities	Construct.	Food Manufact.	Manufact.	Wholesale & Retail	Transport & Warehouse	Info., Culture & Accom.	Finance & Insurance	Real Estate, Rental & Leasing	Profess., Science & Tech.	Admin. & Waste & Other	Non- Profit	Gov't Services
 Economy	Output	0	0	0	0	\$4,974,818	0	0	0	0	0	0	0	0	0	0
	GDP @ Basic Prices					\$1,231,080										
	Taxes on Products					\$19,800										
	Subsidies on Products					-\$88										
	Subsidies on Production					-\$305										
	Taxes on Production					\$15,535										
	Wages & Salaries					\$570,783										
	Employer Social Contribution					\$155,833										
	Gross Mixed Income					\$4,904										
	Gross Operating Surplus					\$484,329										
	GDP @ Market Prices					\$1,250,791										
	International Imports					\$316,958										
	Interprovincial Imports					\$566,909										
	International Exports					?										
Interprovincial Exports					?											
 Jobs	Total					12,373										
	Male					9,136										
	Female					3,237										
	Youth					984										
	25+ Years Old					11,388										
 Environment	Labour Income					\$731,520										
	Total Energy Consumption					11,206,184										
	Natural Gas Consumption					4,824,906										
	NGL Consumption					208,436										
	Coal Consumption					0										
	Electricity Consumption					2,618,802										
	Gasoline Consumption					1,230,449										
	Diesel Consumption					2,264,631										
	Light Fuel Oil Consumption					0										
	Jet Fuel Consumption					0										
	Heavy Fuel Oil Consumption					0										
	Lubricants & Other RPP					58,960										
	GHG Emissions tCO _{2e}					401,541										
	Taxed Emissions tCO _{2e}					331,994										
Carbon Revenue					\$9,959,814											

Notes:

Dollars are expressed in 2019\$.

Values under *Economy* section are expressed in 000s.

Values under *Environment* section are expressed in gigajoules, unless otherwise indicated.

More detailed industry data is available upon request.

Data Sources:

Statistics Canada. Tables: 38-10-0097-01, 36-10-0478 -01 , 36-10-0480-01, 16-10-0048-01 & 14-10-0022-01.

Statistics Canada: Report on Energy Supply and Demand, 2016 Revision.

Environment and Climate Change Canada: Greenhouse Gas Sources and Sinks in Canada, 2020.

Environment and Climate Change Canada: Greenhouse Gas Reporting Program.

Section 4:2 Detailed Results

TOTAL IMPACTS

	Sector	Ag., Forestry, Fishing & Hunting	Mining, Oil & Gas	Utilities	Construct.	Food Manufact.	Manufact.	Wholesale & Retail	Transport & Warehouse	Info., Culture & Accom.	Finance & Insur.	Real Estate, Rental & Leasing	Profess., Science & Tech.	Admin. & Waste & Other	Non- Profit	Gov't Services	Total
 Economy	Output	\$1,735,140	\$494	\$75,875	\$37,234	\$5,316,141	\$130,418	\$219,883	\$296,147	\$83,887	\$103,255	\$26,291	\$70,111	\$57,194	\$1,995	\$28,260	\$8,182,323
	GDP @ Basic Prices	\$585,171	\$320	\$70,253	\$24,547	\$1,304,536	\$48,100	\$141,622	\$134,665	\$47,104	\$51,586	\$14,777	\$44,595	\$35,690	\$1,093	\$17,757	\$2,521,818
	Taxes on Products	\$17,392	\$8	\$151	\$771	\$21,352	\$1,171	\$2,007	\$8,894	\$1,378	\$1,680	\$470	\$738	\$845	\$43	\$273	\$57,174
	Subsidies on Products	-\$18,224	\$0	\$0	\$0	-\$95	-\$124	-\$797	-\$5,108	-\$151	-\$4	-\$1	-\$152	-\$388	\$0	\$0	-\$25,044
	Subsidies on Production	-\$38,755	\$0	-\$11	\$0	-\$328	\$0	\$0	-\$43	-\$190	-\$19	-\$1	-\$26	-\$90	\$0	\$0	-\$39,464
	Taxes on Production	\$74,752	\$19	\$6,934	\$720	\$16,462	\$952	\$3,572	\$6,171	\$1,761	\$2,997	\$2,846	\$387	\$630	\$8	\$275	\$118,486
	Wages & Salaries	\$110,759	\$93	\$16,097	\$14,772	\$607,121	\$23,135	\$69,941	\$66,274	\$20,189	\$24,136	\$2,746	\$23,931	\$23,425	\$902	\$10,120	\$1,013,641
	Employer Social Contribution	\$6,459	\$6	\$4,363	\$2,068	\$165,437	\$6,159	\$8,494	\$12,651	\$3,499	\$4,205	\$331	\$1,897	\$1,664	\$126	\$1,964	\$219,323
	Gross Mixed Income	\$218,249	\$4	\$13	\$5,967	\$2,385	\$137	\$3,679	\$11,134	\$631	\$1,304	\$4,069	\$8,375	\$2,701	\$0	\$0	\$258,649
	Gross Operating Surplus	\$213,707	\$199	\$42,857	\$1,019	\$513,459	\$17,717	\$55,935	\$38,479	\$21,214	\$18,963	\$4,787	\$10,031	\$7,361	\$58	\$5,398	\$951,182
	GDP @ Market Prices	\$584,339	\$328	\$70,404	\$25,318	\$1,325,793	\$49,147	\$142,832	\$138,451	\$48,331	\$53,262	\$15,246	\$45,181	\$36,148	\$1,136	\$18,031	\$2,553,947
	International Imports	\$152,495	\$25	\$540	\$2,569	\$338,591	\$18,740	\$6,860	\$21,398	\$6,012	\$3,028	\$1,013	\$2,954	\$3,004	\$149	\$1,374	\$558,752
	Interprovincial Imports	\$295,151	\$46	\$1,067	\$2,630	\$605,723	\$15,639	\$15,753	\$37,909	\$7,174	\$9,852	\$2,088	\$4,864	\$4,547	\$143	\$1,315	\$1,003,899
	International Exports	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	0
Interprovincial Exports	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	0	
 Jobs	Total	7,389	1	174	321	13,147	437	1,756	1,355	773	362	57	544	631	27	172	27,146
	Male	5,765	1	131	283	9,708	323	1,053	1,055	363	135	32	292	394	13	83	19,629
	Female	1,624	0	43	38	3,439	114	703	301	410	227	25	252	238	13	90	7,517
	Youth	1,193	0	15	52	1,046	35	377	108	285	30	6	42	113	4	10	3,315
	25+ Years Old	6,196	1	159	269	12,101	402	1,379	1,247	487	332	51	502	519	22	163	23,831
	Labour Income	\$335,467	\$103	\$20,474	\$22,808	\$774,943	\$29,431	\$82,115	\$90,059	\$24,319	\$29,645	\$7,146	\$34,203	\$27,790	\$1,028	\$12,084	\$1,491,613
 Environment	Total Energy Consumption	6,323,634	1,656	26,622	11,669	7,693,673	792,683	241,499	1,716,865	78,019	42,420	158,145	43,026	90,330	6,101	41,231	17,267,574
	Natural Gas Consumption	839,042	13	3,119	115	3,823,414	612,214	59,460	45,702	7,823	13,422	118,782	14,395	11,149	1,680	2,347	5,552,677
	NGL Consumption	71,948	9	6	166	59,586	1,743	4,665	9,552	426	218	521	68	591	44	70	149,615
	Coal Consumption	0	0	9,470	0	0	168	0	0	0	0	0	0	0	0	0	9,637
	Electricity Consumption	1,404,713	707	324	1,111	2,405,797	138,078	69,260	27,375	21,582	12,523	14,289	8,469	18,636	2,118	25,724	4,150,705
	Gasoline Consumption	1,213,136	60	5	2,897	788,472	24,872	55,644	44,883	5,289	12,157	13,255	6,534	34,945	187	6,748	2,209,085
	Diesel Consumption	2,702,047	779	13,614	5,725	452,247	10,945	50,668	1,510,236	37,378	429	2,257	211	9,667	18	4,741	4,800,963
	Light Fuel Oil Consumption	6,904	2	0	6	1,728	290	488	2,409	878	191	208	59	456	18	63	13,698
	Jet Fuel Consumption	0	15	0	0	0	0	0	38,179	0	0	0	0	0	0	151	38,344
	Heavy Fuel Oil Consumption	42	23	0	14	115,779	53	576	4,095	236	0	0	95	142	2	54	121,112
	Lubricants & Other RPP	85,802	48	84	1,634	46,649	4,322	737	34,435	4,408	3,479	8,833	13,195	14,743	2,035	1,333	221,737
	GHG Emissions tCO ₂ e	2,152,838	43	3,042	1,420	425,115	40,200	10,658	103,363	1,207	348	4,524	901	3,262	144	947	2,748,011
	Taxed Emissions tCO ₂ e	2,586	43	776	1,049	348,901	4,522	10,658	95,649	1,207	348	4,524	901	3,262	144	947	475,517
Carbon Revenue	\$77,595	\$1,278	\$23,272	\$31,484	\$10,467,031	\$135,646	\$319,737	\$2,869,473	\$36,222	\$10,453	\$135,729	\$27,018	\$97,848	\$4,329	\$28,395	\$14,265,511	

Notes:

Dollars are expressed in 2019\$.

Values under *Economy* section are expressed in 000s.

Values under *Environment* section are expressed in gigajoules, unless otherwise indicated.

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Statistics Canada: Report on Energy Supply and Demand, 2016 Revision.

Environment and Climate Change Canada: Greenhouse Gas Sources and Sinks in Canada, 2020.

Environment and Climate Change Canada: Greenhouse Gas Reporting Program.

Section 5: *Glossary of Terms*

Term	Definition
Carbon Revenue	Tax revenue collected from the Federal carbon tax.
Direct Impacts	Direct impact measures the initial requirements for an extra dollar's worth of output of a given industry. It measures the changes that occur within an industry as the industry responds to demand for its products. Associated with this demand, there will be direct impact on GDP, jobs, and the environment.
Employers' Social Contribution	Social contributions payable by employers to social security funds or other employment-related social insurance schemes to secure social benefits for their employees.
Greenhouse Gas (GHG) Emissions	Gases released into the atmosphere that contribute to climate change.
Gross Domestic Product @ basic prices	Output valued at basic prices less intermediate consumption valued at purchasers' prices. It excludes taxes and subsidies on products.
Gross Domestic Product @ market prices	Output valued at basic prices less intermediate consumption valued at purchasers' prices, plus taxes and subsidies on products.
Gross Mixed Income	Gross mixed income is the surplus generated by operating activities from <u>unincorporated</u> businesses. It consists mostly of profits before taxes, interest expenditures and depreciation.
Gross Operating Surplus	Gross operating surplus is the surplus generated by operating activities from <u>incorporated</u> businesses after the labour factor input has been remunerated. It consists mostly of profits before taxes, interest expenditures and depreciation.
Indirect Impacts	Indirect impact measures the changes due to inter-industry purchases as they respond to the new demands of the directly affected industries. This includes all the chain reaction of output up the production stream since each of the products purchased will require, in turn, the production of various inputs.
Labour Income	The sum of wages & salaries, employers' social contribution, and gross mixed income.
Output	Output consists of goods or services that are produced within an establishment that become available for use outside that establishment, plus any goods and services produced for own final use.
Pre-taxed Profits	For the purpose of this report, pre-taxed profits refers to gross operating surplus. It is acknowledged that gross operating surplus is not equivalent to pre-tax profits as gross operating surplus does not account for fixed capital consumption and other profit-derived factors.
Taxes/Subsidies on Production	Taxes/Subsidies on production that consist of taxes payable/subsidies receivable on goods and services when they are produced, delivered, sold, transferred or otherwise disposed of by their producers. Examples: capital taxes, payroll taxes, tax on insurance premiums, property taxes.
Taxes/Subsidies on Products	Taxes/Subsidies on goods and services that become payable/receivable as a result of the production, sale, transfer, leasing or delivery of those goods or services. Examples: sales tax, fuel tax, environmental fees, custom duties.
Total Impacts	The sum of the direct and indirect impacts.
Wages & Salaries	Monetary compensation and payments-in-kind (for example, board and lodging), to wage earners and salaried persons employed in Manitoba. It is recorded on a gross basis, before any deduction for income taxes, pensions, unemployment insurance and other social insurance schemes.