

PERSPECTIVE

Natural Resources: Still One of Quebec's Economic Assets

By Joëlle Noreau, Senior Economist

Even though Quebec is constantly trying to diversify, the fact remains that natural resources continue to be a mainstay of its economy. They play a major role not only in Gross Domestic Product (GDP), employment and investment, but also the export of goods to other countries. You may think that the rollout of new technologies will cause natural resources' share of the Quebec economy to shrink. But this isn't as obvious as you may believe, as what defines a natural resource becomes increasingly inclusive. Furthermore, other parameters could help us look beyond their commercial exploitation and value them differently. Finally, electrifying transit systems could boost both the metal and the energy sectors. So, can we continue to link natural resources and their processing to backward-looking, low-tech activities? It appears that, they, too, will be part of the future.

An Overview

The importance of natural resources goes well beyond the traditional economic role that they've been playing played for 300 years in Quebec. They've become one factor that sets Quebec apart from the other provinces, especially when it comes to energy. They're also an unending source of wealth that creates well-paying jobs. Quebec benefits from having diverse resources that are modern and in keeping with the new environmental requirements (for example, clean energy, metal for electric batteries and wood).

The following analysis is a brief overview of the five sectors associated with natural resources, with a specific focus on the following industries: mines, metallurgy, forestry (including processing), energy (electric and other forms where possible) and agriculture (including food and beverage production).

We'll discuss the first four sectors as one. The agriculture and agri-food sector will be analyzed separately because it's harder to align its employment data. An overview of some of the parameters will be presented when possible.

What Place Do They Occupy in GDP?

The latest annual numbers available date back to 2020, which was an unusual year because of COVID-19. A 3-year average (2017–2019) will be used to avoid too much of a bias because of the economic slowdown stemming from the pandemic. This average will be used for comparison purposes with 2020.

Table 1 shows the importance of the mining, metallurgy, forestry (and its processing) and energy sectors in terms of Quebec's total GDP. Energy occupies the biggest share, at 3.5% to 3.6% of Quebec's annual GDP, followed by mining and quarrying at 2.2%. Together, all the sectors mentioned earlier represent, in good years and bad, more than 10% of total GDP, but this figure is still an estimate, since it doesn't necessarily include all the activities that add value to natural resources. Energy and all its variations (natural gas, wind, solar, biomass, etc.) is but one example. To find out why it's so difficult, see the box on page 2.

TABLE 1
Importance relative to Quebec GDP
(mines, metallurgy, forestry and energy)

IN %	2020	2017–2019 AVERAGE
All industries	100.0	100.0
Energy sector	3.5	3.6
Forestry and logging	0.2	0.2
Mining and quarrying (except oil and gas)	2.2	2.2
Support activities for mining, oil and gas extraction	0.1	0.1
Wood product manufacturing	0.6	0.6
Paper manufacturing	0.6	0.7
Petroleum and coal product manufacturing	0.3	0.3
Primary metal manufacturing	1.2	1.2
Fabricated metal product manufacturing	1.0	1.0
Furniture and related product manufacturing	0.4	0.4
Total* (mines, metallurgy, forestry and energy)	10.1	10.4

* Due to rounding, the total may not exactly equal.
Sources: Statistics Canada and Desjardins, Economic Studies

What About Jobs?

There are no sub-sector data available on all employees and they don't consider self-employed workers. The mining, metallurgy, forestry (and its processing) and energy industries' share is 5.0% regardless of the year looked at (table 2). Representing 1.2% of Quebec employees, most employees work in manufacturing metal products like architectural and structural metal products, hardware, springs, boilers and tanks, as well as in forging and machine shops. Forestry has self-employed workers who are not included in this calculation.

It's worth noting that, with 5% of the jobs and 10% of GDP, the natural resource sector's labour productivity is very high.

Table 3 shows how many employees work in each sub-sector. In total, 182,000 people were employed on average between 2017 and 2019. If we look at 2020, this number fell to almost 172,000. Many major groups stand out for the number of employees that exceed 20,000. The first to come to mind is metal product manufacturing (between 42,513 in 2020 and 45,148 on average from 2017 to 2019), followed by wood product manufacturing (27,087 and 29,190, respectively), the production, transmission and distribution of electricity (22,907, the only figure available for 2017 to 2020), and the manufacturing of furniture and related products (20,068 and 23,206).

BOX

A Word of Caution

The data are provided for information purposes only, as they don't cover all activities included in highlighting natural resources for different reasons.

Concerning energy:

- ▶ There are some data relating to the distribution of natural gas that don't appear because of the small number of companies in this sector (confidentiality under the provisions of the *Statistics Act*).
- ▶ Sometimes, the situation is the same for the production and distribution of electricity.
- ▶ The data relating to companies that produce turbines, solar panels or wind turbine blades are classified under machinery manufacturing and not included in these calculations.
- ▶ Everything that deals with methanization is included in waste management and doesn't appear in this summary.
- ▶ The activities surrounding biomass production and research to produce energy are spread out among several industries, making it difficult to find any significant statistics on them.

TABLE 2

Importance relative to salaried employment (mines, metallurgy, forestry and energy)

IN %	2020	2017–2019 AVERAGE
All industries	100.0	100.0
Forestry and logging	0.2	0.2
Mining, quarrying, and oil and gas extraction	0.5	0.4
Support activities for mining, oil and gas extraction	0.1	0.1
Electric power generation, transmission and distribution	0.7	0.6
Natural gas distribution	n/a	n/a
Paper manufacturing	0.5	0.6
Wood product manufacturing	0.8	0.8
Petroleum and coal product manufacturing	0.1	0.1
Primary metal manufacturing	0.5	0.4
Fabricated metal product manufacturing	1.2	1.2
Furniture and related product manufacturing	0.6	0.6
Total* (mines, metallurgy, forestry and energy)	5.0	5.0

n/a: not available; * Due to rounding, the total may not exactly equal.
Sources: Statistics Canada and Desjardins, Economic Studies

TABLE 3

The number of salaried jobs (mines, metallurgy, forestry and energy)

IN NUMBER	2020	2017–2019 AVERAGE
All industries	3,516,903	3,697,340
Forestry and logging	5,406	5,917
Mining, quarrying, and oil and gas extraction	16,313	15,177
Support activities for mining, oil and gas extraction	3,002	3,002
Electric power generation, transmission and distribution	22,907	22,907
Natural gas distribution	n/a	n/a
Paper manufacturing	17,737	20,904
Wood product manufacturing	27,087	29,190
Petroleum and coal product manufacturing	3,586	3,688
Primary metal manufacturing	17,070	16,558
Fabricated metal product manufacturing	42,513	45,148
Furniture and related product manufacturing	20,068	23,206
Total (mines, metallurgy, forestry and energy)	172,103	182,009

n/a: not available
Sources: Statistics Canada and Desjardins, Economic Studies

A Major Share of Investment

In 2021, the natural resource sector represents just over \$10B in investment intentions (table 4 on page 3). This figure accounts for two-thirds of the investment intentions of Quebec's producers of goods (67.0%). It also corresponds to 21.0% of private and public investments in non-residential fixed assets in Quebec this year.

At nearly \$6B, it's not hard to guess that the lion's share goes to public utilities, which include the production, transmission and distribution of electricity, followed by mining and quarrying, which require enormous resources.

An International Export Heavyweight

If we include processing, natural resources are a heavyweight in Quebec's exports abroad. On average, they represented roughly 40% of total annual exports for 2017–2019 and 2020 (table 5 on page 3), or \$34.7B and \$36.0B, respectively. Primary metal processing (smelting and refining of ferrous and non-ferrous metals) leads, with a share that fluctuates

TABLE 4
Importance relative to investment intentions – 2021
(mines, metallurgy, forestry and energy)

IN \$M	FIXED ASSETS
Goods producing industries	15,239.3
Forestry and logging	47.4
Agriculture and forestry support activities	49.1
Mining, quarrying, and oil and gas extraction	2,042.7
Public utilities	5,987.8
Wood product manufacturing	203.0
Paper manufacturing	420.8
Petroleum and coal products manufacturing	167.6
Primary metal manufacturing	935.0
Fabricated metal product manufacturing	245.4
Furniture and related product manufacturing	101.4
Total (mines, metallurgy, forestry and energy)	10,200.2

Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

TABLE 5
Importance relative to international exports
(mines, metallurgy, forestry and energy)

IN \$M (EXCEPT IF INDICATED)	2020	2017–2019 AVERAGE
Total international exports from Quebec	85,709.0	90,325.3
Forestry and logging	13.7	17.9
Mining, quarrying, and oil and gas extraction	5,812.3	4,133.3
Support activities for mining, oil and gas extraction	n/a	n/a
Public utilities	785.3	1,141.2
Wood product manufacturing	4,001.6	3,664.7
Paper manufacturing	5,495.8	6,461.0
Petroleum and coal products manufacturing	1,712.1	2,745.5
Primary metal manufacturing	13,350.9	14,239.6
Fabricated metal product manufacturing	2,689.2	2,592.8
Furniture and related product manufacturing	844.6	969.7
Total natural resources*	34,705.5	35,965.5
Importance of natural resources relative to total exports (in %)	40.5	39.8

n/a: not available; * Due to rounding, the total may not exactly equal.
Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

between 38.5% and 39.6% depending on the year. Its top ranking remains undisputed, while second place is a toss-up between mining and quarrying and paper manufacturing. Whereas paper manufacturing ranked second in the 2017–2019 average (18.0%), it fell to third place in 2020 (15.8%). Wood product manufacturing came in fourth, with its share fluctuating anywhere between 10.2% and 11.5%.

Enviably Average Weekly Earnings

Once again, wages relate to employee status. Table 6 reveals that weekly earnings in natural resource industries are generally higher or practically the same as the Quebec average. The wood product manufacturing and furniture industries are slightly below this level.

The Quebec average was \$932.62 per week for the period 2017–2019 and \$1,039.14 for 2020. Nonetheless, earnings rose that year despite the pandemic.

TABLE 6
Comparison of average weekly earnings
(mines, metallurgy, forestry and energy)

IN \$	2020	2017–2019 AVERAGE ¹
All industries	1,039.14	932.62
Forestry and logging	n/a	1,019.80 ²
Mining and quarrying (except oil and gas)	1,823.58	1,700.11
Support activities for mining, oil and gas extraction	1,712.50	n/a
Electric power generation, transmission and distribution	n/a	n/a
Natural gas distribution	n/a	n/a
Paper manufacturing	1,385.60	1,307.72
Wood product manufacturing	1,008.61	922.38
Petroleum and coal product manufacturing	nd	1,580.87 ³
Primary metal manufacturing	1,549.86	1,372.44
Fabricated metal product manufacturing	1,036.64	1,003.03
Furniture and related product manufacturing	837.73	820.46

n/a: not available; ¹ Average for years 2018; ² 2019 and 2020 when possible; ³ 2018 and 2019 only
Sources: Statistics Canada and Desjardins, Economic Studies

Some sectors clearly pay more. Mining's ratio was 1.8, or nearly twice the Quebec average for 2017–2019 and 2020. The ratio for mining support activities was 1.6 in 2020, the only year for which data are available. The ratio for petroleum and coal product manufacturing (data for 2019 only) was 1.6 and 1.7, respectively, depending on the period used for comparison. The ratio for primary metals was around 1.5. Paper manufacturing's ratio fluctuated between 1.3 and 1.4, which is still 30% to 40% higher than the average Quebec wage.

It's interesting to note that no matter which indicator is used, whether it's GDP, the number of wage earners, investments, international exports or average weekly earnings, it's impossible to say that one industry completely dominates the natural resource sector for all parameters. This limits a particular activity's vulnerability or dependence in the event of a slowdown, labour dispute, trade war or sudden drop in prices. This conclusion applies to the Quebec economy as a whole. However, the situation varies from one region to the next in Quebec, with some municipalities relying heavily on a factory, mine or plant in a specific sub-sector. Several regions that depend significantly on extracting and processing natural resources quickly come to mind: Côte-Nord, Nord-du-Québec, Abitibi-Témiscamingue, Saguenay-Lac-Saint-Jean, Gaspésie and Îles-de-la-Madeleine, and Bas-Saint-Laurent.

The Agriculture and Food Processing Sector

Examples of this sector can be found in every one of Quebec's regions. When looking at primary (agriculture) and secondary (processing) activities, this industry represents, in good years and bad, roughly 4.0% of the Quebec economy (table 7 on page 4). Agriculture alone represented between 1.5% (average for 2017–2019) and 1.6% (2020) of annual GDP. Food production was 1.7% and 1.8% for the same periods, whereas beverages and tobacco products represented 0.6% no matter which years were considered.

TABLE 7
Importance of agriculture and food processing relative to Quebec GDP

IN \$	2020	2017–2019 AVERAGE
All industries	100.0	100.0
Crop and animal production	1.6	1.5
Support activities for crop and animal production	0.1	0.0
Fishing, hunting and trapping	0.0	0.0
Food manufacturing	1.8	1.7
Beverage and tobacco product manufacturing	0.6	0.6
Total*	4.0	3.9

* Due to rounding, the total may not exactly equal.
 Sources: Statistics Canada and Desjardins, Economic Studies

By adding the 4.0% to the other resource percentages discussed earlier (between 10.0% and 10.4%), the total is 14.0% to 14.4% of the Quebec economy, which is significant.

Labour Market

One of the peculiarities of the agriculture sector is the large number of businesses that are mostly family owned. Many of the workers are self-employed, which is why the data for the agriculture sector were taken from the *Labour Force Survey* (which includes self-employed workers) instead of the *Survey of Employment, Payrolls and Hours*, which only considers employees. Table 8 shows that the number of jobs has changed little in recent years, with 56,000 to 57,000 regardless of the years looked at. There is some question as to whether buying local and greenhouse growing boom will cause the number of workers to increase over time. We already know that recruiting workers has been a problem in this sector for years, which has limited job growth.

On average, food as well as beverage and tobacco manufacturing employed more than 72,000 workers annually between 2017 and 2020 (table 9), or roughly 2.0% of all employees in Quebec.

TABLE 8
Number of agriculture jobs according to the Labour Force Survey

IN NUMBER	2020	2017–2019 AVERAGE
Agriculture jobs	56,400	56,600

Sources: Statistics Canada and Desjardins, Economic Studies

Major Investments

Table 10 indicates investment intentions in the agriculture and food production sectors. At \$809.6M in 2021, food manufacturing is in the lead, followed by livestock and farm crops (\$368.6M). Manufacturing alone accounted for nearly \$1.3B. If we include agricultural activities, there are \$2.2B in

TABLE 9
Number of employees in food and beverage manufacturing

EMPLOYEES, NUMBER ACCORDING TO SEPH	2020	2017–2019 AVERAGE
All industries	3,516,903	3,697,340
Food manufacturing	63,387	63,202
Beverage and tobacco product manufacturing	8,838	9,093
Total	72,225	72,295

SEPH: *Survey of Employment, Payrolls and Hours*
 Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

TABLE 10
Importance of investment intentions relative to agriculture and food and beverage manufacturing – 2021

IN M\$	FIXED ASSETS
Goods producing industries	15,239.3
Farm crops	368.6
Livestock and aquaculture	522.3
Fishing, hunting and trapping	8.9
Food manufacturing	809.6
Beverage and tobacco product manufacturing	441.8
Total (agriculture and food and beverage manufacturing)	2,151.2

Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

investment intentions, equivalent to 14.1% of those for goods producing industries in Quebec this year.

By combining these intentions with those for the sectors analyzed earlier (mines, metallurgy, forestry and energy), we reach more than 80% of all investments in goods producing industries. That's roughly 25.0% of private and public investments in non-residential fixed assets in Quebec. Natural resources carry weight!

Share of International Exports

The value of international exports of agricultural products and processed foods fluctuated somewhat from one year to the next. Table 11 on page 5 shows that the sector is going through some major changes. Agriculture prices have varied significantly due to factors like the weather, animal diseases, trade relationships and so on. As a result, the average annual value reached \$8.7B in 2017–2019, then climbed to \$9.7B in 2020. This represents between 9.6% and 11.4% of Quebec's total international exports.

By adding these percentages to those of the mines, metallurgy, forestry and energy group, that's roughly 50% of the value of the goods exported internationally that revolve around raw materials and their processing.

TABLE 11
Importance of the agriculture and food products sector relative to international exports

IN \$M (EXCEPT IF INDICATED)	2020	2017-2019 AVERAGE
Total international exports from Quebec	85,709.0	90,325.3
Farm crops	2,025.1	1,632.3
Livestock and aquaculture	59.7	77.6
Fishing, hunting and trapping	43.4	45.7
Crop and livestock support activities	0.5	0.6
Food manufacturing	7,223.8	6,552.2
Beverage and tobacco product manufacturing	382.0	346.7
Total agriculture, fishing and food	9,734.4	8,655.1
Importance of agriculture, fishing and food and beverage manufacturing relative to total exports (in %)	11.4	9.6

Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

An Evolving Situation

This brief overview doesn't claim to be looking at every activity relating to natural resources for several reasons.

First, it's still difficult to get a good idea of the activities involved in new energy sources (especially wind, solar and biomass) due to the low number of players (data privacy) or because some of the activities that deal with the manufacturing of components used to produce equipment are found in sectors like machinery manufacturing.

Second, the term "natural resource" is increasingly expanding beyond the traditional definition. We're currently seeing the potential of natural resources that we would have had trouble imagining not too long ago. They're not new, rather it's the way they're being used that makes them stand out. Slurry and manure are just two examples. These materials could become a source of natural gas in the coming years (biogas). It's still too early to attempt to quantify these operations, which have not yet been rolled out on a large scale. We'll need to keep a close eye on developments, as initiatives are currently underway. Any efforts made until now are not included in this analysis aimed at determining how important natural resources are to the Quebec economy.

Third, we can't claim that everyone agrees on what constitutes a natural resource and its contribution to the economy's capital stock. For example, should we include water (the use of river currents or tides, human consumption, industrial use, etc.) and wind?

Can we quantify what the forestry adds to the economy other than through its processing? Work is being done in what is referred to as ecological economics. According to the [Canadian Society for Ecological Economics](#), it is "the study of relationships and interactions between economies and the ecosystems that support them. It is an interdisciplinary

collaboration of economics, ecology and other social and natural sciences that aims to understand what sustainability is and how it can be achieved."¹ This discipline uses multiple methodologies, so there's no agreement on how to assess environmental goods from an economic perspective. Some see it as a tool for public policy decision-making : others believe that it presents a risk of commodification of nature and its riches. In any event, it's a developing branch of research that we'll hear a lot more about in the coming years.

A sign of the times: [investment management companies](#) are buying forested land to sequester and store carbon. This already provides some insight into the strategic importance placed on some resources beyond their conventional commercial use. It will be interesting to follow the developments.

Natural Resources, a Visible Presence

Quebec has a lot of natural resources, not only in terms of volume, but also the economic activity they generate, and they carry considerable weight in investments and the export of goods internationally. We may think that, with the rollout of new technologies, natural resources' share of the Quebec economy could shrivel up. Yet things are not always as they seem.

[Wood](#) is increasingly preferred for use in construction and for its properties in a growing number of areas ranging from building (even paint and cement) to clothing and food. Metals available in Quebec (gold, industrial metals) are still in demand. Furthermore, Quebec's subsoil contains [metals](#) used to produce electric vehicle batteries, which makes this sector even more enticing. If recycling was increasingly valued, then why couldn't we be doing it here?

Having an abundance of promising natural resources is an asset. Highlighting them should be done responsibly, with the objectives of the fight against climate change in mind.

Electrifying transit could boost both the metal and the energy sectors. Considering this, can we continue to associate natural resources and their processing with backward-looking, low-tech activities? It appears that they, too, will be part of the future.

¹ Free translation, from *Économie écologique et santé publique : une entrevue avec le Dr Trevor Hancock*, May 2020, p. 17.