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PERSPECTIVE

The Rubber and Plastic Industry: Providing Production Inputs and Food for Thought

By Joëlle Noreau, Senior Economist

Rubber and plastic products are everywhere. There are hundreds of different kinds of plastic, and we have a love–hate relationship with them. We love them for their versatility and functionality, but hate them because they seem to last forever and are hard to dispose of. But their utility has been on display during the pandemic. In 2021, GDP, employment, wages and other economic indicators grew faster in the rubber and plastic industry than in the manufacturing sector as a whole. So what's in store for this industry over the next year? It'll be a time of change, that's for sure. And not just because of labour shortages, technological advances and resin costs. Demand is shifting, so the industry will have to change how it operates.

Quebec's Rubber and Plastic Industry at a Glance

As of December 2021, there were 591 rubber and plastic producers in Quebec, with most (513) specializing in plastics. The industry is dominated by small businesses, and only 97 have 100 or more employees (table). That number rises to 125 if you include producers of resin, synthetic rubber, and artificial and synthetic fibres and filaments, which are usually considered chemical products. In Quebec, plastic goods makers are concentrated in the Montreal area and the Montérégie and Chaudière-Appalaches regions, while rubber goods producers are mostly based in Montérégie, Montreal and the Estrie.

Quebec's rubber and plastic industry is a major subcontractor for the transportation, construction and packaging industries. It's also a key link in the production chain for wind turbines and medical equipment.

In recent years, plastic and composite manufacturing has accounted for a growing share of total manufacturing GDP, from

TABLE

Quebec: Number of rubber and plastic product makers as of December 2021

	EMPLOYMENT SIZE GROUP (NUMBER OF EMPLOYEES)								
QUEBEC	Total	1 to 4	5 to 9	10 to 19	20 to 49	50 to 99	100 to 199	200 to 499	500 or more
Manufacturing	13,616	4,286	2,678	2,257	2,316	1,063	638	297	81
Rubber and plastic	591	79	84	88	138	105	69	25	3
Plastic	513	73	67	71	121	99	60	21	1
Rubber	78	6	17	17	17	6	9	4	2
Makers of resins, synthetic rubber, and artificial and synthetic fibres and filaments	28	9	1	3	8	5	2	n/a	n/a

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

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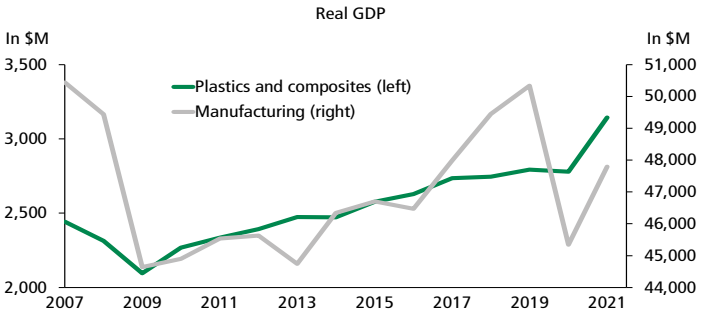
an average of 5.7% over the past ten years to 6.1% in 2020 and 6.6% in 2021. This surge is due in large part to the hot housing market and demand for equipment to fight the pandemic. As you can see in graph 1, in 2020 the industry's real GDP edged down 0.5%, but total manufacturing GDP plunged 9.9%. Last year, real GDP spiked 13.1% and 5.4% respectively.

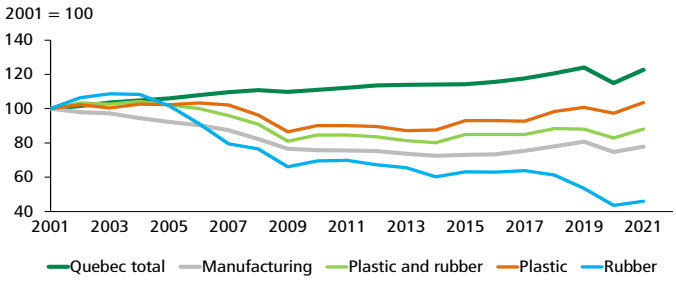
GRAPH 1
Quebec: Plastic manufacturing GDP edged slightly lower during the pandemic but grew in 2021



Sources: Statistics Canada and Desjardins, Economic Studies

The industry workforce has been shrinking for a long time (graph 2). Since 2001, the labour force has grown 22.7% in Quebec overall, but shrunk 11.9% in the rubber and plastic industry. However, the rubber and plastic industry is holding on to more workers than the larger manufacturing sector, which saw its workforce plummet 22.2% during the same period. Employment rose 3.6% in the plastic industry while plunging more than 50% in the rubber industry.

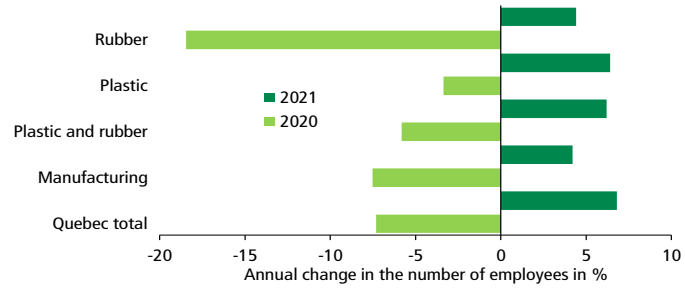
GRAPH 2
The workforce in the rubber and plastic industry has declined since 2001, but not as much as the overall manufacturing sector



Sources: Statistics Canada and Desjardins, Economic Studies

In 2020, the number of workers in the rubber and plastic industry fell 5.8% (graph 3). This was a smaller decline than we saw in both Quebec (-7.3%) and the manufacturing sector as a whole (-7.5%). The plastic industry lost 3.4% of its workforce while rubber shed 18.5%. But the plastic industry more than offset its pandemic job losses last year. In 2021, it had 2.8% more employees than it did in 2019 before the pandemic.

GRAPH 3
Quebec: The rubber and plastic industry lost fewer employees in 2020



Sources: Statistics Canada and Desjardins, Economic Studies

Forced to Adapt

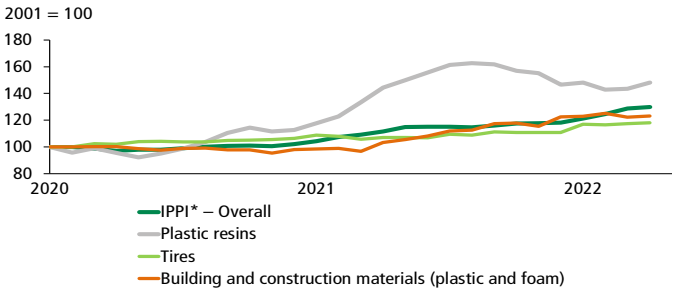
The rubber and plastic industry has had its share of challenges in recent years. In 2019, it was contending with labour shortages, a slowing economy and foreign competition—issues facing other industries in Quebec as well. But the rubber and plastic industry was also being forced to rethink its production methods given the life cycle of its products from basic inputs to end-of-life disposal. And it had to do so in keeping with tougher environmental standards.

This all changed with the pandemic, which led to strict public health measures and huge demand for medical and personal protective equipment. Demand for a number of niche plastic products also surged overnight. Some plants had to adjust their delivery sizes. Others retooled their production lines to meet demand for personal protective equipment. Demand surged for gloves, visors, masks, acrylic dividers, containers and grocery bags because we didn't know to what extent the virus spreads on surfaces. It's likely that demand also rose for testing and diagnostic equipment.

It's therefore not surprising that real GDP in rubber and plastic slipped just 0.5% in 2020, while Quebec's overall economy shrank by 5.4%. In 2021, the industry's real GDP and workforce both rose sharply.

This increased demand for goods has driven up demand for resins used to make plastic products. Graph 4 on page 3 shows the rise in the industrial product price index (IPPI) for plastic resins. The index began to increase in July 2020 amid widespread disruptions in the global supply of medical and personal protective equipment. There are many different kinds of resins, but the index shown is an overall index. Some resins appreciated more than others. There was also an increase in the IPPI for other products, including plastics and foams for building and construction, due to strong housing market activity. As in many sectors, when inputs like resins are in short supply, users order more so they don't run out. This eventually leads to delivery delays because the items are scarce.

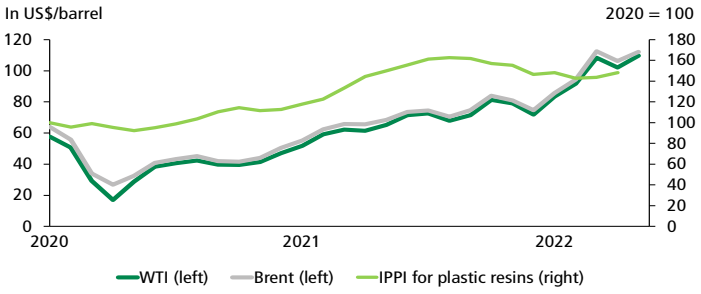
GRAPH 4
Canada: The price indexes for industrial products such as resins have increased significantly since the summer of 2020



* Industrial product price index.
Sources: Statistics Canada and Desjardins, Economic Studies

Last summer, resin factories on the Gulf of Mexico had to slow operations due to Ida and other hurricanes, exacerbating supply shortages and price growth. But as you can see in graph 5, soaring oil prices were also behind the spike in the IPPI for resins. In the United States, it's estimated that 5% of oil produced is earmarked for plastics.

GRAPH 5
Canada: Plastic resin prices are sensitive to spikes in oil prices



Sources: Datastream, Statistics Canada and Desjardins, Economic Studies

Yet commodity costs weren't the only challenge facing the industry. The home construction and renovation boom also contributed to the material shortage. This put the squeeze on rubber and plastic product makers that were already under pressure and contending with rising costs.

The labour shortage also put pressure on producers. Between 2019 and 2021, Quebec manufacturers raised employees' average weekly earnings by 6.3%. That figure was 10.1% in the rubber and plastic industry. So while the last two years have highlighted the importance of rubber and plastic products, they also came with their share of challenges.

A Whole Network

Quebec's rubber and plastic industry doesn't operate in a vacuum. Although many of these businesses are small—two-thirds of them have fewer than 50 employees—, they don't work in isolation. Many organizations sponsor networking events for companies in the industry and related industries. There are too many to name, but here are a few. Alliance Polymères Québec (formerly Vallée de la plasturgie) is a niche of excellence bringing together businesses that make plastics, composites and moulds. There are also industry trade groups, including the Regroupement des industries des composites du Québec and the Association for the Development and Innovation of Chemistry in Quebec.

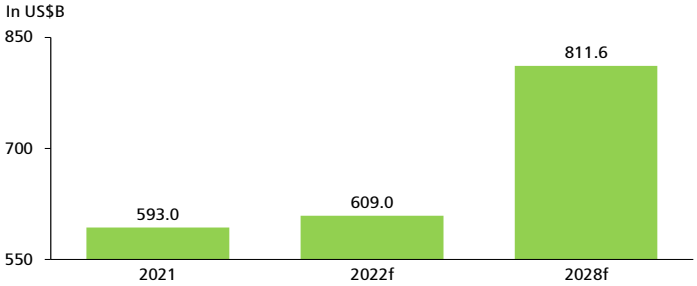
Then there are research centres such as Coalia, which provides technical assistance and applied research services to businesses in the plastic and mineral technology industries. Meanwhile the Composites Development Centre of Quebec is a college centre for technology transfer that helps businesses develop new products and technology. There's also the Pôle de recherche et d'innovation en matériaux avancés, whose goal is to spur innovation in the field of advanced materials and give manufacturers access to state-of-the-art equipment and expertise.

So while the industry may seem fragmented with small producers, there are organizations working to bring together businesses from across the province and help them grow. But these businesses have more on their minds today than just production. Challenges such as environmental issues, changing market demand, labour shortages and competition are forcing them to rethink how they operate.

Rethinking Products—and the Industry

Although some countries, cities and retailers have banned certain plastics, analysts predict that global sales and production aren't about to decline anytime soon (graph 6). And there's a movement afoot to do away with other plastics, especially water bottles, grocery bags, produce packaging and other single-use plastics.

GRAPH 6
The value of the global plastic market is likely on the rise again



f: forecasts
Sources: Statista and Desjardins, Economic Studies

Plastics come in countless forms and have endless uses. There's a growing case both for and against them. Based on studies, press releases, articles and other documents we've reviewed, the issues are complex and varied. But one thing we can say with certainty is that the arguments for and against plastics aren't clearcut. They're part of a much larger discussion on the needs of plastic-using industries, how to meet those needs, the eco-design of plastic products, end-of-life disposal, new production and recycling processes, and other issues.

To cut down on single-use plastics, some businesses have replaced plastic containers with containers made of paper, cardboard, starch or other biodegradable materials. And manufacturers are working to develop 100% compostable plastic wrap. But plastic has thousands of uses, so this solution won't be a magic bullet. Work is therefore being done to find ways to recycle plastic. As we mentioned earlier, there are hundreds of types of plastic, so this is no easy task.

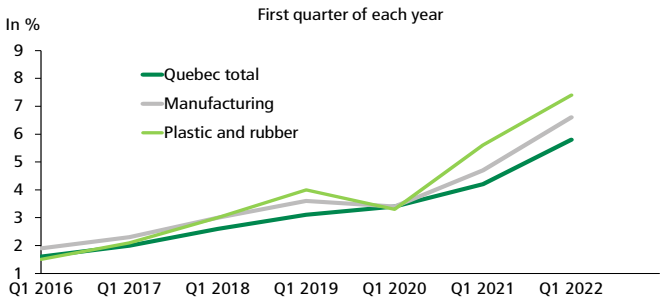
There are basically two types of recycling. With mechanical recycling, plastic is used as an input to make new products. The hard part is making recycled plastic less expensive than plastic made with virgin resin. Sky-high oil prices make this easier. But recycled plastic is used to make cheaper goods that may not be recyclable. Chemical recycling is an emerging technology. Simply put, it involves breaking down the plastic's chemical structure. This makes it reusable with qualities similar to those of plastic made with virgin resins. But while these technologies sound great, they aren't used on a large scale, don't address the resin shortage or cost issues, and don't work with all plastics.

The Next Few Months

The rubber and plastic industry will continue to face challenges over the coming months. The labour shortage is one ongoing issue. In the first quarter of 2022, the job vacancy rate was higher in the rubber and plastic industry than in the manufacturing sector as a whole (graph 7) despite significant wage growth between 2019 and 2021. The job vacancy rate in the rubber and plastic industry was also much higher than the Quebec average, and it seems unlikely that this will change in the near term.

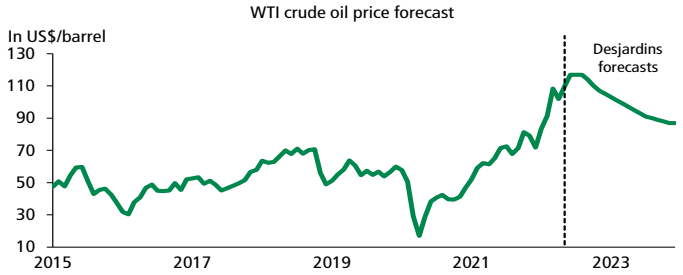
Automation is also a challenge for businesses in the industry and across Quebec. Implementing innovative processes is a must. Businesses have to start producing new composites, find solutions to the labour shortage and fight off competition. And if oil prices move as expected in the next two years (graph 8), the cost of resins won't be going down anytime soon. Does this mean an industry slowdown is on the horizon? No, but the industry is poised to change, that's for sure. And not just because of labour shortages, technological advances and resin costs. Demand for rubber and plastic products is shifting, so the industry will have to change how it operates.

GRAPH 7
Quebec: The job vacancy rate in the rubber and plastic industry is higher than average



Sources: Statistics Canada and Desjardins, Economic Studies

GRAPH 8
Oil prices are expected to remain elevated for a few more months and stay above US$70 per barrel



WTI: West Texas Intermediate
Sources: Datastream and Desjardins, Economic Studies