

ECONOMIC VIEWPOINT

Accelerating Small Business Success: Navigating the Canadian Innovation Landscape

By Jimmy Jean, Vice President, Chief Economist and Strategist, Randall Bartlett, Senior Director of Canadian Economics and Kari Norman, Economics Document Production Specialist

Highlights

- ▶ Canada has a productivity and innovation problem, and Canadian small- and medium-sized enterprises (SMEs) struggle the most. This is true not just relative to larger Canadian companies, but also to SMEs in other countries.
- ▶ While SMEs generally recognize the benefits of investing in innovative technologies and processes, they face barriers that prevent them from making those investments. Key among these barriers are a lack of technical skills and knowledge, challenges hiring highly skilled workers and difficulty accessing financing for investment in innovation.
- ▶ The barriers to SME innovation are not insurmountable, and many can be overcome with well-targeted, well-funded public policy. However, more clearly needs to be done to ensure that these policies are tailored to the needs of Canada's entrepreneurs and well communicated to business owners.
- ▶ But industry can also do more to increase its productivity. Looking at sectors with a high prevalence of SMEs, introducing innovative services and processes can help to reach more customers and increase revenues while cutting costs, thereby boosting profits.
- ▶ There are five sectors with a high share of employment in SMEs that could dramatically increase their productivity. These are agriculture; accommodation and food services; wholesale and retail trade; construction; and other services (which includes things like house cleaning and auto repair).

Small- and medium-sized enterprises (SMEs) play a central role in Canada's economy, outnumbering large companies and employing more Canadians overall. Their strengths can come from close relationships within their local communities, allowing them to better meet their customers' needs. In addition, less organizational complexity can make for close-knit, collaborative teams and more streamlined decision-making processes.

But to thrive in the long term, small businesses need to innovate and grow. And that's not just true of tech startups at the forefront of developing advanced technologies (see [our recent](#)

[analysis](#) highlighting Canadian leadership in several emerging disruptive innovations)—innovative enterprises also adopt and leverage new technologies to increase their productivity.

However, Canada's SMEs have historically failed to keep pace with the productivity gains of their international peers, particularly in the US. They have also lagged larger Canadian companies. And while [our recent report](#) outlined essential public policies needed to promote greater innovation and productivity in Canada at large, SMEs have their own unique set of circumstances.

The authors would like to thank Robert Asselin, Hendrik Brakel, Sherif El Tawil, Derek Newton, Mirela Pirlea, Rocco Rossi, Cameron Schuler, Mauricio Zelaya and Tamara Zimmerman for generously sharing their remarkable insights.

Desjardins Economic Studies: 514-281-2336 or 1-866-866-7000, ext. 5552336 • desjardins.economics@desjardins.com • desjardins.com/economics

NOTE TO READERS: The letters k, M and B are used in texts and tables to refer to thousands, millions and billions respectively.
IMPORTANT: This document is based on public information and may under no circumstances be used or construed as a commitment by Desjardins Group. While the information provided has been determined on the basis of data obtained from sources that are deemed to be reliable, Desjardins Group in no way warrants that the information is accurate or complete. The document is provided solely for information purposes and does not constitute an offer or solicitation for purchase or sale. Desjardins Group takes no responsibility for the consequences of any decision whatsoever made on the basis of the data contained herein and does not hereby undertake to provide any advice, notably in the area of investment services. Data on prices and margins is provided for information purposes and may be modified at any time based on such factors as market conditions. The past performances and projections expressed herein are no guarantee of future performance. Unless otherwise indicated, the opinions and forecasts contained herein are those of the document's authors and do not represent the opinions of any other person or the official position of Desjardins Group. Copyright © 2023, Desjardins Group. All rights reserved.

This note provides an overview of the challenges to innovation faced by SMEs and how they impact the ability of SMEs to scale up. We then dig into the potential public policy solutions that could help close the innovation and productivity gap with SMEs in other countries and larger companies in Canada. Owners also need to proactively seek out and adopt relevant new technologies to help their businesses grow and thrive in a changing landscape.

The Scale of Canada’s SME Productivity Challenge Is Significant

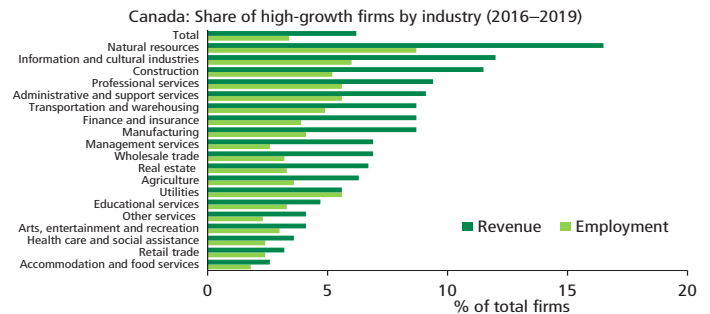
There’s a longstanding debate about why Canada consistently lags behind other countries in productivity and innovation. The conversation often turns to the large share of output from and employment in Canadian SMEs (graph 1). They’re known to be less productive than larger companies and SMEs in other countries. This has all but ensured a lower level of output per hour worked in every industry relative to the US and the country as a whole ([Statistics Canada, 2014](#)).

Within Canada, sectors with a larger share of employment in SMEs are generally also the least productive (graph 2). This has weighed on national productivity. Five sectors in particular

have low levels of productivity but an especially high share of employment in SMEs. These are agriculture; accommodation and food services; wholesale and retail trade; construction; and other services (which encompasses things like house cleaning and auto repair). In contrast, the most productive industries in Canada are natural resources, including mining and oil and gas extraction, and utilities. But as we discussed in [a recent note](#) on real GDP per capita in Canada, these highly productive sectors account for a declining share of economic activity, providing less of a tailwind to national-level productivity.

Looked at differently, the share of high-growth firms in an industry tends to fall as the prevalence of SMEs in that sector increases. As we saw with productivity, growth in both revenue and employment has underperformed most other industries in accommodation and food services; other services; arts, entertainment and recreation; and retail trade (graph 3). The one notable exception is the perennially unproductive construction industry, which saw revenue grow considerably from 2016 to 2019 as the Canadian housing market boomed.

GRAPH 3 High-Growth Firms Are Often in Industries with Fewer SMEs



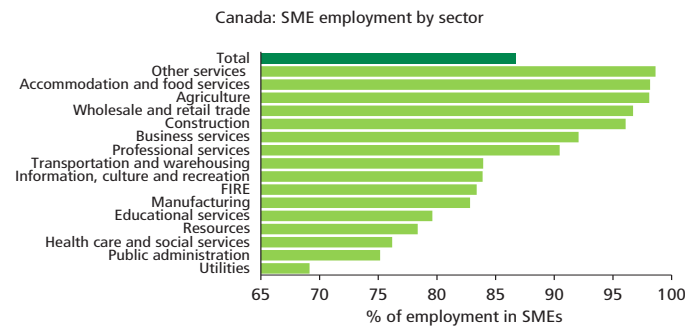
Sources: Statistics Canada, Innovation, Science and Economic Development Canada and Desjardins Economic Studies

SMEs Can Be Innovators in Their Fields

The most common form of innovation is taking a new or significantly improved good or service to market (graph 4 on page 3). But innovation can also be improving a production process or workplace organization or developing a new marketing approach. Mid-sized enterprises are more likely to engage in all types of innovation than smaller ones. Indeed, research has found that both R&D spending and R&D productivity increase with firm size ([Knott and Vieregger, 2018](#)).

Just over 18% of all businesses in Canada own one or more types of formal [intellectual property](#) (IP) rights—one measure of innovation. These include patents, industrial designs, copyrights and trademarks. However, IP ownership varies considerably by industry. Just under half of all companies in the clean technology and information and cultural industries own at least one type

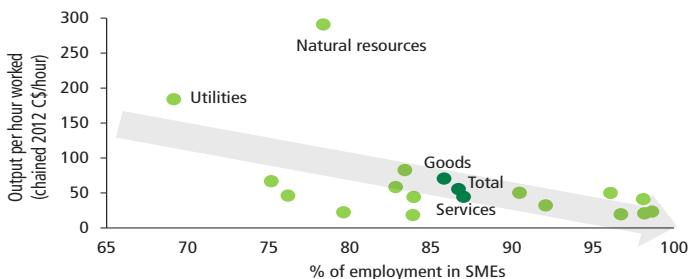
GRAPH 1 A Majority of Canadians Are Employed by SMEs



SME: Small- and medium-sized enterprises; FIRE: Finance, insurance, real estate and leasing Sources: Statistics Canada and Desjardins Economic Studies

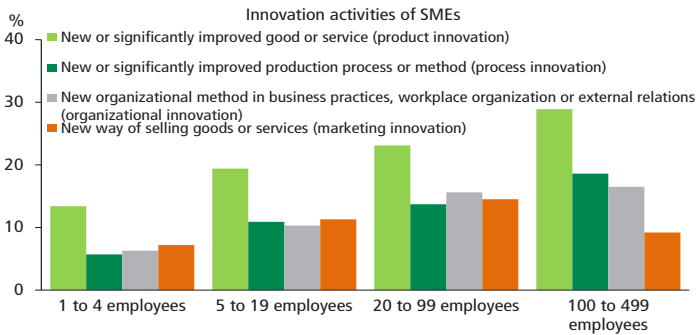
GRAPH 2 Industries Dominated by SMEs Are the Least Productive in Canada

Canada: Labour productivity versus small business employment share (1998–2022 average)



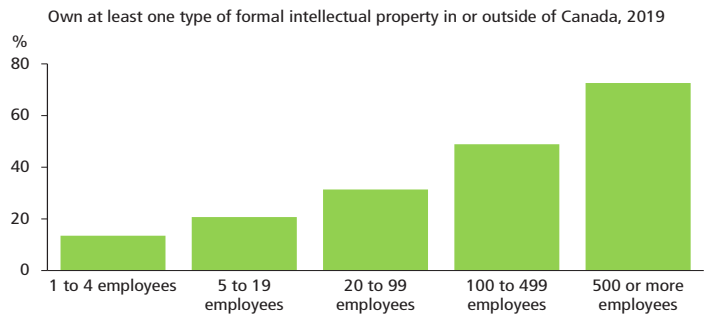
SME: Small- and medium-sized enterprises Sources: Statistics Canada and Desjardins Economic Studies

GRAPH 4
Smaller Enterprises Are Less Likely to Innovate



Sources: Statistics Canada and Desjardins Economic Studies

GRAPH 6
Large Companies Are Significantly More Likely to Own Intellectual Property



Sources: Statistics Canada and Desjardins Economic Studies

of intellectual property (graph 5). Owning IP rights is strongly correlated with firm size, with nearly three-quarters of large firms and almost half of medium-sized firms owning at least one type of IP. In contrast, only 14% of firms with under five employees own IP rights (graph 6). IP rights are also more strongly correlated with firms that buy (34%) and sell (38%) internationally, and they're more common among those that receive private sector financing (50%) versus public sector financing (35%).

Even when a Canadian company creates and develops an invention, the related patents are frequently transferred to foreign entities rather than the product being scaled up and commercialized domestically. [Our recent report](#) noted that almost half of patents on Canadian AI inventions are foreign-owned. That means Canadian inventors forego future profits from their own innovations. Retaining IP rights allows SMEs to signal their value to venture capitalists. In contrast, if they transfer their IP rights to larger firms, they may pay large royalties to use their own ideas or even be prevented from innovating in related technological areas ([Policy Options, 2019](#)). On the other hand, Canada is a small open economy, and much of the venture capital—and market for its products—is foreign.

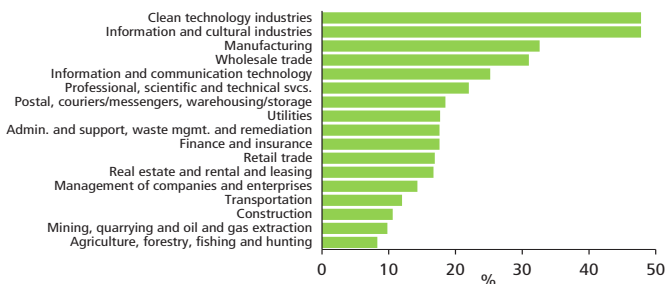
Are SMEs Investing in Adopting Technology and Innovation?

SMEs recognize the benefits of innovation. For example, investing in automation during periods of labour shortages can increase productivity and efficiency while allowing existing employees to focus on creative tasks that require human skills. A recent Canadian Federation of Independent Business (CFIB) [survey](#) found that investing in automation had a high success rate in resolving staffing issues (graph 7). However, it's less likely to be used than other approaches. Instead, small enterprises are much more likely to increase wages, recruit younger workers, allow flex hours or hire less-qualified workers—even though each of these alternatives has a significantly lower success rate. SMEs are also increasingly likely to use the Temporary Foreign Worker Program, which has a higher success rate at resolving staffing issues than many of the other options.

A recent [survey](#) of SMEs by the Business Development Bank of Canada (BDC) found that many SMEs are not implementing and using technology effectively (graph 8 on page 4). While SMEs are generally savvy about building websites and social media accounts, their levels of adoption of advanced technologies and

GRAPH 5
Clean Tech and Information and Cultural Industries Own More Intellectual Property Rights

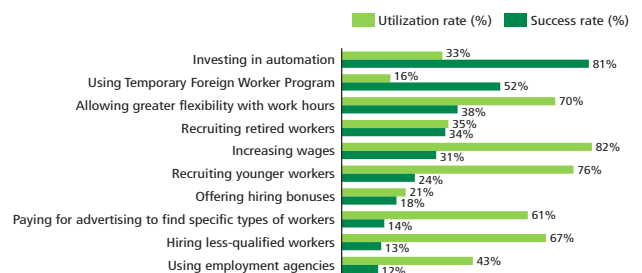
Own at least one type of formal intellectual property rights in or outside of Canada, 2019



Sources: Statistics Canada and Desjardins Economic Studies

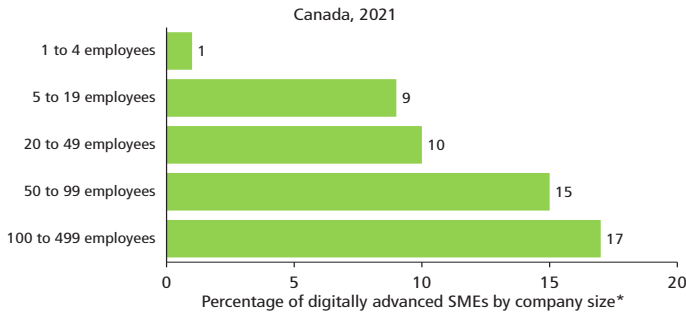
GRAPH 7
Automation Is Less Commonly Used—but More Successful—than Increasing Wages

Actions to help resolve staffing issues – Canada, December 2021



Sources: Canadian Federation of Independent Business and Desjardins Economic Studies

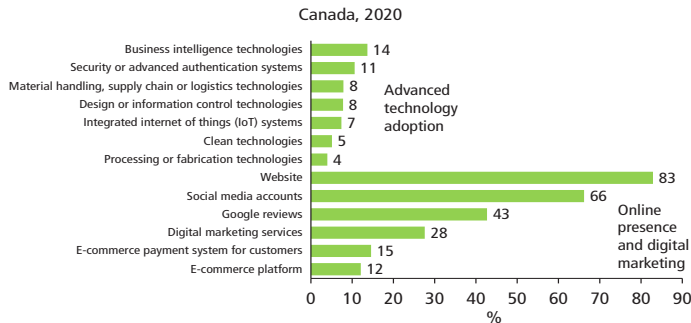
GRAPH 8
Larger SMEs Tend to Be More Digitally Mature



* 2021 Digital Assessment Survey (1,599 respondents)
Sources: Business Development Bank of Canada and Desjardins Economic Studies

e-commerce payment systems are significantly lower (graph 9). This is unfortunate, as the BDC report noted that SMEs that are digitally mature tend to grow faster, are more resilient because they can absorb disruptions to their activities and adapt to a changing environment, and are almost twice as likely to export than the average SME.

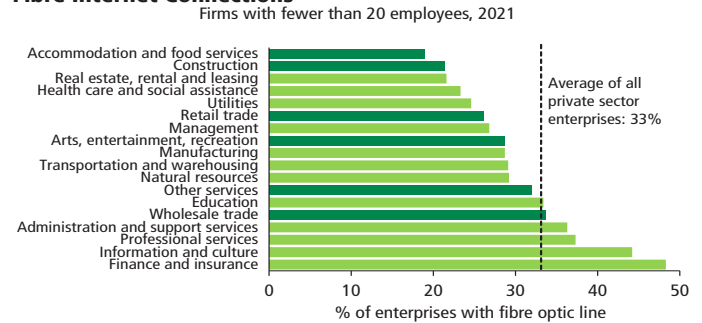
GRAPH 9
SMEs Are Better at Building an Online Presence than Adopting Advanced Technology or E-commerce



Sources: Statistics Canada and Desjardins Economic Studies

One of the important disruptive technologies highlighted in [our recent report](#) is 5G internet. A fibre optic internet connection is the gold standard for faster speed, lower latency and greater capacity than previous technologies. Canadian enterprises with fewer than 20 employees are significantly less likely to have fibre optic connections at 28% than medium-sized firms at 48% and large firms at 75%. Moreover, small firms in sectors with a high prevalence of SMEs are less likely than the all-firm average to have fibre optic internet connections (graph 10). For SMEs in urban centres, making the switch to fibre optic is fairly simple. The power of 5G is the backbone of other advanced technologies such as the Internet of Things, artificial intelligence and data analytics.

GRAPH 10
Sectors with a High Prevalence of SMEs Are Less Likely to Have Fibre Internet Connections



Sources: Statistics Canada and Desjardins Economic Studies

Why Aren't SMEs Investing More in Technology and Innovation?

In the near term, a lack of SME investment may reflect the decline in business sentiment among Canadian companies and the deteriorating outlook for sales growth over the next 12 months (graph 11). Relatively speaking, it's faster and less of a commitment to increase the number of workers than to invest in machinery and equipment. Moreover, we're currently in a period of high financing costs due to the recent series of interest rate hikes and much higher input prices.

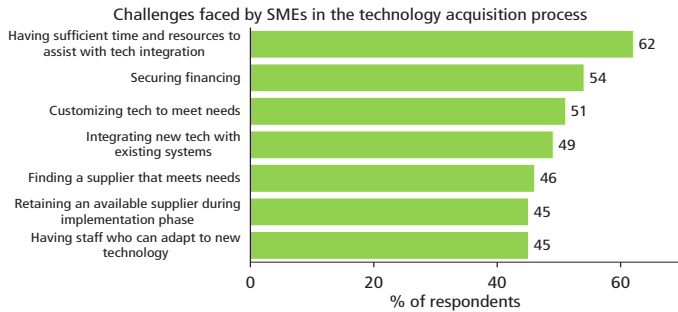
But underinvestment in innovation by Canadian SMEs is a long-term problem. According to the OECD's March 2022 Future of Business Survey, the most common deficits reported by small firms, particularly micro firms, were a lack of technical skills and knowledge. This is true across all sectors. Meanwhile according to the [BDC \(2022\)](#), companies face numerous barriers to technological acquisition, including insufficient time and resources to assist with integration as well as inadequate access to financing (graph 12 on page 5).

GRAPH 11
Businesses Expect Their Sales Growth to Slow



Sources: Bank of Canada and Desjardins Economic Studies

GRAPH 12
Why Don't SMEs Invest in Technology?

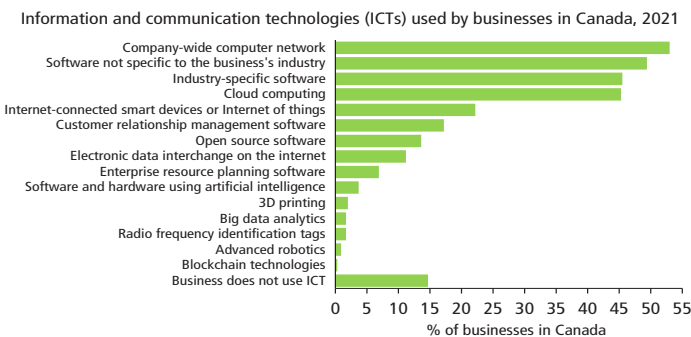


SME: Small- and medium-sized enterprises
Sources: Business Development Bank of Canada and Desjardins Economic Studies

Lack of Technical Skills and Knowledge

Across surveys, the most common reason cited by SMEs for not adopting new technologies and processes is a lack of resources to understand and integrate them into their business. And this makes sense, as 55% of all businesses in Canada in 2021 had just 1 to 4 employees (ISED, 2022). The owners and employees of these companies are no doubt focused on delivering on their core business, not optimizing digital solutions. Indeed, while just about half of large businesses and one fifth of medium-sized businesses employed information and communications (ICT) specialists, this was true for only 7% of small businesses in 2021. And the share of Canadian firms of all sizes still lags behind their OECD peers in terms of accessing ICT specialists and training for ICT skills (OECD, 2023). Despite the acceleration in adopting more digital technologies during the pandemic, that figure is roughly unchanged from 2019 across Canadian companies (Statistics Canada, 2022). In spite of these challenges, the OECD found that Canadian SMEs are above the OECD average in accessing cloud computing services (graph 13).

GRAPH 13
Canadian Companies Have Taken to Cloud Computing but Lag in Other Technologies



Sources: Statistics Canada and Desjardins Economic Studies

Skilled Labour Shortages

Small businesses in Canada face numerous challenges in attracting and retaining great talent. According to a September 2023 survey by CFIB, almost half of respondents indicated that the biggest factor limiting sales or production growth is skilled labour shortages, and more than one in four face a shortage of unskilled or semi-skilled labour (graph 14). Both numbers are up significantly from their long-term averages of 35% and 20%, respectively. At the same time, 62% of respondents indicated that wages are their biggest input cost constraint. These views are reflected in the falling but still elevated job vacancy ratio. Notably, this dip has corresponded with the unprecedented pace of non-permanent resident admissions to Canada over the past year. (See our recent analysis on immigration and the Canadian economy.)

GRAPH 14
Labour Shortages Are Impacting SME Sales and Growth



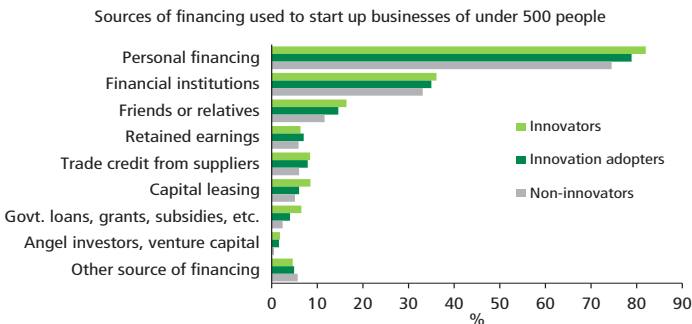
SME: Small- and medium-sized enterprises
Sources: Canadian Federation of Independent Business and Desjardins Economic Studies

SMEs Struggle for Financing

The barriers faced by SMEs are particularly acute during times of economic stress. As we highlighted in our previous report on the challenges facing Ontario small businesses coming out of the pandemic, sectors with a higher prevalence of small businesses tended to be the most financially stressed.

About four out of five owners of SME start-ups use their own personal funds as a source of financing for their business (graph 15 on page 6). Most SME start-ups don't receive government funding like loans, grants, subsidies or non-repayable contributions.

GRAPH 15
Innovative SMEs Have a Variety of Funding Sources



Sources: Statistics Canada and Desjardins Economic Studies

What Can Be Done to Better Support SME Innovation?

The first step in recovery is recognizing that you have a problem. Canadian SMEs have a productivity problem that can be traced back to their lack of investment in innovation due to constraints that are often beyond their control. These include a lack of resources to develop the technical skills and knowledge to integrate new technology into existing processes, a dearth of highly skilled workers to sustain innovation, and insufficient financing to make the investments they need.

Lack of Technical Skills and Knowledge

If SMEs lack the resources to develop the technical skills and knowledge needed to support innovation, there is a role for public policy to provide those resources. And there are examples of this in Canada.

For instance, the federal government offers what’s called the [Canada Digital Adoption Program](#) (CDAP). The CDAP includes a grant of up to \$15,000 from Innovation, Science and Economic Development Canada (ISED) to develop a Digital Adoption Plan, up to \$100,000 in 0% interest loans from BDC to implement the plan, and up to \$7,300 to hire a skilled young person to implement technologies that can propel a business forward.

Meanwhile, the Government of Ontario has introduced [Critical Technology Initiatives](#) (CTI), which work with not-for-profit organizations to “... further the development, commercialization and adoption of technology by Ontario companies in key sectors. This technology will increase productivity and encourage further innovation in Ontario.” The funding can be as high as 50% of eligible project costs.

However, the evaluation of the effectiveness of these programs appears to be lacking. For instance, it isn’t known how interested SMEs have been in participating in these programs or if they even know about them. Often, one of the biggest hurdles to implementing public policy is communicating it to the parties it’s

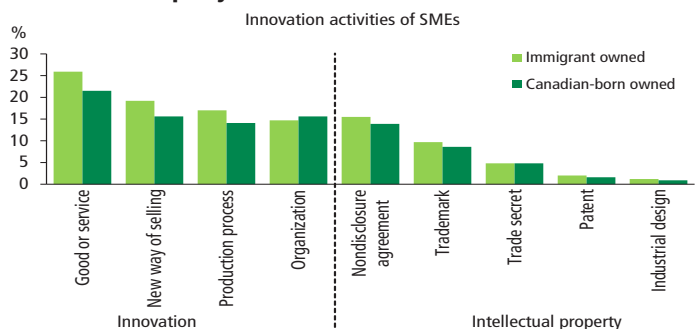
targeted toward. Accessing programs can also be unintentionally but onerously bureaucratic.

Addressing Skilled Labour Shortages

In the near term, Canadian businesses are addressing acute labour shortages by inviting an unprecedented number of non-permanent residents to come to Canada. This is happening through programs like the Temporary Foreign Worker Program and the International Mobility Program. In June 2023, the federal government went a step further by launching the [Tech Talent Strategy](#), which is intended to allow short-term workers in the most innovative sectors to work in Canada more easily.

But not all SMEs behave in the same way. Immigrant entrepreneurs are more likely to be highly educated, particularly in a science, technology, engineering or mathematics (STEM) field, which is associated with innovation and intellectual property rights (graph 16). [Statistics Canada \(2020\)](#) found that immigrant-owned firms were more likely than SMEs owned by Canadian-born business owners to implement a product or process innovation, regardless of whether they were a new immigrant or in Canada for many years. The differences were less pronounced but still noticeable for intellectual property. Immigrant business owners also tend to engage in higher rates of international trade, likely aided by their network of contacts in their country of origin.

GRAPH 16
Immigrant SME Owners Are More Likely to Innovate and Hold Intellectual Property



Sources: Statistics Canada and Desjardins Economic Studies

Given Canada’s commitment to higher levels of immigration, this bodes well for innovation and productivity growth going forward. Product innovations can result in higher sales growth and market share, while process innovations are associated with higher productivity. And the greater engagement in international trade of immigrant-founded businesses also provides reason for optimism in the global commercialization of homegrown Canadian technologies.

Filling the Financing Gap

Much ink has been spilled about what needs to be done to expand the role of venture capital (VC) in Canada. (See [our recent note](#) on innovation policy.) The recently announced Canada Investment Corporation (CIC) is meant to play a complementary role to VC. Funded to the tune of \$2.6 billion over four years starting in 2023, the CIC is intended to work with the private sector by providing targeted support to Canadian businesses to help them innovate, commercialize and grow. In the same vein as DARPA, it’s being promoted as an “operationally independent, outcome-driven organization” ([Government of Canada, 2023](#)).

However, the innovation conversation has largely focused on the tech sector and often leaves out those SMEs in more traditional industries that are looking to adopt new technologies to innovate their processes. Unfortunately, existing measures intended to support SME innovation, such as Scientific Research and Experimental Development (SR&ED) tax incentives, miss the mark in this regard. And while programs like CDAP will help, much more needs to be done, particularly during this period of high borrowing costs and inflation. The federal government recently lowered the financial burden on SMEs by transforming the Canada Emergency Business Account (CEBA) repayment into a 3-year, low-interest loan for those companies unable to find financing. But this will only provide modest relief over the next few years.

Innovation in Sectors Where SMEs Are Most Prevalent

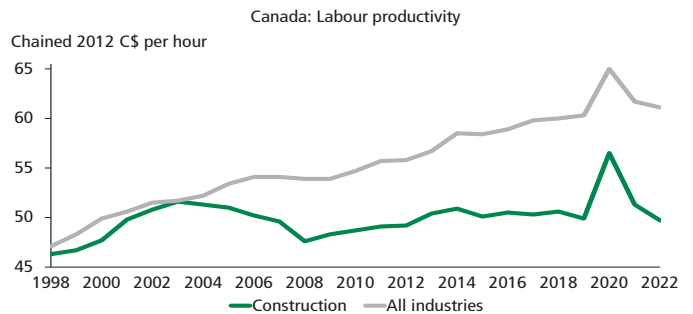
Construction

As highlighted earlier, there are a few sectors dominated by SMEs that would benefit from a significant boost in productivity. One that is front of mind for many Canadians given the current housing affordability crisis is the construction industry. In [our recent report](#) on policy measures to increase the Canadian housing supply, we also looked at the challenges facing homebuilders in Canada. Costs are an important one. But construction productivity has trailed well behind the broader Canadian economy over the past 20 years (graph 17). Potential solutions include local government support for modular and prefabricated housing, building plans that are pre-approved by building authorities, and compact planning strategies in greenfield and large redevelopment sites.

Agriculture

Agriculture is another sector that is ripe for innovation. Great strides are being made in what’s called precision agriculture, which the National Research Council defines as “the application of modern information technologies to provide, process and analyze multisource data of high spatial and temporal resolution for decision making and operations in the management of crop production.” The use of technologies like remote sensors, global

GRAPH 17
Construction Sector Productivity Has Been Falling Behind



Sources: Statistics Canada and Desjardins Economic Studies

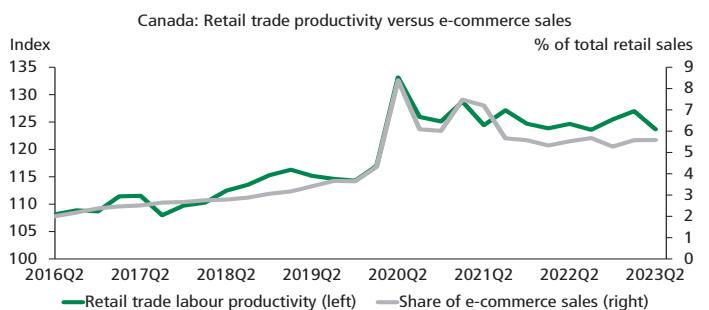
positioning system (GPS), global navigation satellite system (GNSS) and unmanned aerial systems is changing the way crops are grown by dramatically increasing efficiency ([Science Direct, 2023](#)).

Wholesale and Retail Trade

But increasing productivity in goods-producing sectors like agriculture and construction is low-hanging fruit. The bigger challenge will be boosting productivity in services-producing sectors such as wholesale and retail trade; accommodation and food services; arts, recreation and culture; and other services. These customer-facing sectors were all hard hit by pandemic lockdowns and emerged much more indebted than they were going in.

Wholesale and retail trade in particular had already been undergoing a transition for some time. Retail e-commerce rose from about 2% of retail sales at the start of 2016 to about 4% on the eve of the COVID-19 pandemic. And after cresting at nearly 9% of retail sales in Q2 2020, the e-commerce share has settled in at around 5% to 6% of total retail sales, slightly above its pre-COVID trend. It’s the gradual increase in e-commerce activity that has driven productivity gains in retail trade (graph 18). Looking ahead, businesses involved in retail

GRAPH 18
E-commerce Is Driving Productivity in Retail Trade



Sources: Statistics Canada and Desjardins Economic Studies

and wholesale trade are more likely than companies in any other sector to be planning to invest in online sales or e-commerce capabilities, which should help to further boost productivity (graph 19).

GRAPH 19
Retail and Wholesale Businesses Are Investing in Innovation



Sources: Statistics Canada, Canadian Chamber of Commerce and Desjardins Economic Studies

Food Services

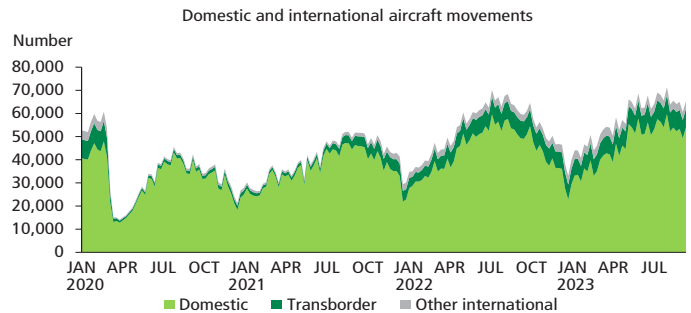
Food services is a sector that also saw enormous innovation as a result of the pandemic. Forced to keep their doors closed because of public-health-mandated lockdowns, many restaurants began working with food delivery services to reach their customers. In 2020, nearly 20% of food services and drinking places made 30% or more of their total sales online. That was more than double the proportion that did in 2019 ([Statistics Canada, 2021](#)). And these services look to be here to stay. Roughly half of Canadian households are expected to continue ordering food online at least once a week going forward, particularly families with children. While restaurants and bars are expected to continue to adopt online food delivery options for customers, high service fees remain a barrier for many businesses and customers alike.

But the innovations don't stop with online services. Restaurants are also increasingly turning to in-store innovations like robot servers and self-checkouts to address labour shortages and rising labour costs. Task robots can undertake range from food preparation and drink service to table and curbside delivery. But as in the case of AI, human workers will still be required in restaurants, although their tasks will change. Instead of preparing and delivering food or managing people, they'll be managing robots and the processes they carry out ([Richtech Robotics, 2022](#)).

Accommodation and Entertainment

The remaining service-producing sectors with substantial SME representation were similarly challenged during the pandemic but were less able to adapt to a remote environment. For instance, as travel fell sharply during the pandemic (graph 20), demand for hotels and entertainment dried up. These industries have since roared back as people resumed activities they missed out on when stuck at home. This exacerbated inflation as lockdowns were lifted, further reinforcing the need for interest rate hikes, although price growth has recently showed signs of slowing. While this surge in demand has allowed companies in these industries to raise prices and profits to offset some of the losses incurred during the pandemic, many remain heavily indebted.

GRAPH 20
After Falling Sharply, Air Travel Has Returned to Pre-pandemic Levels



Sources: Statistics Canada and Desjardins Economic Studies

Conclusion

Canada has a productivity and innovation problem, and SMEs struggle the most. However, while SMEs generally recognize the benefits of investing in innovative technologies and processes, they face barriers that prevent them from making those investments. Key among these barriers are a lack of technical skills and knowledge, challenges hiring highly skilled workers, and difficulty accessing financing for investment. Fortunately, these barriers are not insurmountable and can be overcome with well-targeted, well-funded public policy. But more clearly needs to be done to ensure that these policies are designed to meet the needs of Canada's entrepreneurs and adequately communicated to them. SMEs also have responsibility in shaping their future through innovation. Every industry has a unique opportunity to make gains in reaching new customers, raising revenues, lowering costs and driving greater profitability.