



THE IMPACT OF THE COVID-19 CRISIS ON BUSINESS STARTUPS AND ENTREPRENEURIAL ACTIVITIES IN CANADA

2025

Small Business Branch — Mamour Fall



This publication is available online and in PDF format at canada.ca/smeresearch. Cette publication est aussi disponible en français sous le titre *L'impact de la crise de la COVID-19 sur le démarrage d'entreprises et les activités entrepreneuriales au Canada*. To obtain a paper copy of this publication or an alternate format (Braille, large print, etc.), please fill out the [Publication Request form](#).

Except as otherwise specifically noted, the information in this publication may be reproduced, in part or in whole and by any means, without charge or further permission from the Department of Industry, provided that due diligence is exercised in ensuring the accuracy of the information reproduced; that the Department of Industry is identified as the source institution; and that the reproduction is not represented as an official version of the information reproduced, or as having been made in affiliation with, or with the endorsement of, the Department of Industry. For permission to reproduce the information in this publication for commercial purposes, please fill out the [Application for Crown Copyright Clearance](#).

© His Majesty the King in Right of Canada, as represented by the Minister of Industry, 2025

Cat. No. Iu188-173/2025E-PDF

ISBN 978-0-660-77183-0

Table of contents

Summary	1
Introduction	2
1. Literature review on COVID-19 and entrepreneurship	4
2. Overview of the impact of COVID-19 on newly established businesses in Canada	7
3. Description of the databases	9
3.1. COVID-19 stringency index (Bank of Canada)	9
3.2. Global Entrepreneurship Monitor (GEM)	10
3.3. Effects of the pandemic on business creation	16
3.3.1. Sources of financing	16
3.3.2. Motivations for creating a business	21
3.3.3. Gender gap during the pandemic	22
3.3.4. Perception during the pandemic	26
3.3.5. New opportunities during the pandemic	28
4. Empirical strategy	31
5. Results	34
5.1. Impact of COVID-19 on the decision to start a business	34

5.2. Impact of the stringency of health measures related to COVID-19 on the decision to start a business	37
5.3. Dynamics of COVID-19's effect on the decision to start a business	40
5.4. Heterogeneity in entrepreneurial choices during COVID-19	41
5.4.1. Heterogeneous effects of COVID-19 by sociodemographic characteristics	41
5.4.2. Heterogeneity in entrepreneurial choice during COVID-19 across sectors	45
5.5. Profiles of nascent entrepreneurs during COVID-19: motivated by necessity, internationally-oriented, innovative, and growth-oriented	49
5.6. New opportunities during COVID-19: digitalization	53
6. Conclusion	57
7. Appendix	58
7.1. Data and variable definitions	58
7.1.1. Main dependent variables	58
7.1.2. Control variables	59
7.2. Additional figures	60
7.3. Additional tables	61
Bibliography	64

Summary

This report analyzes the impact of the COVID-19 pandemic on entrepreneurship and the dynamics of business startups in Canada based on data from the Global Entrepreneurship Monitor (GEM) survey, which interviewed over 16,000 Canadian adults between 2015 and 2021.

The pandemic caused a significant drop in the likelihood that a person will become a new entrepreneur, defined as a person who started a business less than a year ago and has not yet paid any salaries. This probability decreased 13.2% compared with the period from 2015 to 2019, with varying effects based on age, gender, income level, lines of business, and the entrepreneur's motivation.

More specifically, the probability of starting a business decreased 2.8 percentage points among people aged 25 to 34. Men were particularly affected by the pandemic, with a significant decrease of 2.1 percentage points, while women were less affected. Furthermore, the report highlights that COVID-19 impacted low-income individuals, reducing their likelihood of starting a business by 1.8 percentage points. In addition, significantly fewer businesses were created in sectors such as retail, hospitality and food services, as well as consumer services, with a decrease of 20.8%.

The pandemic had a negative impact on high-growth entrepreneurs, defined as individuals planning to create an above-average number of jobs, relative to their sector, over the next five years. COVID-19 led to a 23.7% drop in the likelihood that a person will be a nascent high-growth entrepreneur, as entrepreneurs were faced with delays in getting businesses up and running, difficulties in starting a business, and lower business growth prospects. The motivations of nascent entrepreneurs changed, with a 39.3% increase in the likelihood of necessity-based entrepreneurs, defined as individuals who started a business to maintain their income in the face of job shortages.

Despite the public health crisis, some entrepreneurs were able to take advantage of new opportunities, particularly by introducing innovative goods and services or by adopting digital technologies. The results indicate a 66.7% increase in startup companies that adopted innovation. The report also highlights an increase in digitalization among opening businesses.

Introduction

Entrepreneurship plays a crucial role in innovation, job creation and productivity.

New businesses bring new ideas and new products, thereby stimulating growth and productivity. They also put pressure on underperforming companies, encouraging them to exit the market, which helps to increase overall productivity (Schumpeter, 1942).

The COVID-19 public health crisis had a major impact on entrepreneurship. The purpose of this report is to analyze the effects of the pandemic on entrepreneurship, focusing on the characteristics of nascent entrepreneurs, including their motivations and their tendency to create digital or innovative businesses. The study uses survey data from the Global Entrepreneurship Monitor covering over 16,000 Canadian adults between 2015 and 2021.

This data includes sociodemographic information, such as age, gender, income, employment status, as well as the attitudes and entrepreneurial choices of adults within a representative sample of the Canadian population. The analysis focuses on startups that have been in existence for less than a year and whose owners have not paid salaries for more than three months.

These companies are considered to be nascent companies. This approach allows the early stages of starting a business to be explored.

By examining their actions, motivations, and decision-making processes, the report provides insight into the perspectives on how entrepreneurs tackle challenges and opportunities by identifying the factors that promote their success.

The empirical methodology is based on a probit model to estimate the effect of COVID-19 on the likelihood of a person starting a business, controlling for sociodemographic characteristics. The main results indicate an overall decline of 13.2% in the likelihood of starting a business during the pandemic compared with the period preceding COVID-19 (2015–2019).

This decline particularly affected individuals aged 25 to 34, men, and low-income individuals. The effects of the pandemic also varied by sector, depending on the varied impacts containment measures and mobility restrictions.

The results reveal that sectors such as the retail, hospitality and food services sector, and consumer services were the most affected by COVID-19, with an average decrease of 20.8% in the likelihood of starting a business.

The results also indicate a significant increase of 39.3% in necessity-based nascent entrepreneurs, likely due to rising unemployment and increased financial difficulties.

Furthermore, COVID-19 led to a significant decrease of 23.7% in the likelihood of an individual starting a high-growth company, which could have impacts on future job creation if companies tended to end up smaller as a result.

However, some entrepreneurs took advantage of the new opportunities created by the pandemic to launch innovative goods and services, which led to a 66.7% increase in the number of innovative companies on the market.

The COVID-19 pandemic impacted business creation by changing the motivation and technological focus of new entrepreneurs.

This report is one of the first to examine the impact of COVID-19 on entrepreneurship and company creation in Canada, taking entrepreneurial characteristics into account. It could improve the understanding of Canadian entrepreneurs' profiles. The study is divided into several sections.

- The first section presents a literature review on entrepreneurship and COVID-19.
- The second section describes the context of business dynamics in Canada during the pandemic.
- The third section explains the GEM database and the COVID-19 restriction policies.
- The fourth section outlines the empirical strategy to measure the effect of COVID-19 on business creation.
- The fifth section highlights the analysis of the results.
- The last section concludes the report.

1. Literature review on COVID-19 and entrepreneurship

The COVID-19 public health crisis and the containment measures implemented to limit the spread of infections impacted businesses and entrepreneurship.

Beland *et al.* (2020) studied the short-term impact of the COVID-19 pandemic on self-employed workers in Canada who are considered small business owners. Using data from the Labour Force Survey (LFS), the authors revealed that between February 2020 and May 2020, there was a decrease in the number of business owners: 14.8% for corporations and 10.1% for unincorporated entities. Furthermore, the authors observed that the lines of business encompassing sales and service functions (-12.8%) and arts, culture, and recreation (-14.8%) were among the most affected.

Tam *et al.* (2020) studied the impacts of COVID-19 on small businesses during the third quarter of 2020 in Canada. Using the Canadian Survey on Business Conditions between September 15 and October 23, 2020, the authors showed that small businesses were more likely to report a decrease in revenue (-40%) compared with August 2019. However, small businesses were less likely to take on more debt. In fact, nearly 47.2% of businesses with 1 to 4 employees and 43.4% of businesses with 5 to 19 employees reported that they did not have the capacity to take on more debt during the pandemic.

Lafrance-Cooke (2021) showed a decrease of 5.4% in the number of entrants during the pandemic in Canada compared with 2019. Most of the business creation took place between June and December 2020. This study also indicated that the employment created by these new businesses had decreased 20.7% compared with 2019. Furthermore, in 2020, entrants tended to be smaller in size. In fact, the average size of a business in 2020 was 4.4 employees, down from 5.3 employees in 2019.

The Business Development Bank of Canada (BDC), in collaboration with the Université de Montréal, conducted a study in 2023 on the evolution of entrepreneurship in Canada during the COVID-19 pandemic. This study revealed that the decline observed over the past 20 years in the number of people starting a business intensified during the pandemic.

More specifically, in 2022, only 1.3 people out of 1,000 started a business, compared with 3 out of 1,000 in 2000.

This study identified several factors that contributed to this decline, including a low unemployment rate, high wages, an aging population, and a more complex business environment.¹

Several other studies focused on the pandemic's impact on various aspects of businesses and entrepreneurs' attitudes. Liñán and Jaén (2022) analyzed the effects of COVID-19 on entrepreneurship and found a significant decrease in entrepreneurial activities and an increase in necessity entrepreneurs.

In fact, while opportunity entrepreneurship were associated with the perception of

exploiting opportunities, necessity entrepreneurship were associated with other factors, such as poverty (Moradi *et al.*, 2020) and unemployment (Massar *et al.*, 2020). These trends were observed during the pandemic, pushing entrepreneurs to create a business to address the lack of financial resources (Ferraris *et al.*, 2020).

Another part of the literature examines the impact of COVID-19 on various aspects of entrepreneurship, such as financial difficulties, the owner's profile, and the lack of liquidity. Amore *et al.* (2022) analyzed how the presence of family in ownership and management of the business influences firms' responses during COVID-19.

Using Italian data on family firms, the authors showed that these firms were more profitable than other firms on the market during the pandemic.

Ferrando (2020), relying on survey data at the firm level between February and April 2020 from a large sample of European small and medium enterprises, demonstrated that COVID-19 led to a significant deterioration in access to credit lines and bank loans. These factors reduced firms' ability to find financing when dealing with shocks.

¹ The study is based on the analysis of three online surveys, an econometric analysis, and the updated BDC index of new entrepreneurial activity. Two online surveys were conducted from March 2 to March 14, 2023: one with 1,259 Canadian small business owners who started a business more than two years ago, and the other with 1,001 Canadians aged 18 and older who wanted to start a business in the next two years or who started a business less than two years ago. The Université de Montréal used the same questionnaire to survey its student population between June 12 and June 21, 2023, which resulted in 230 responses (see the report [here](#)).

This report is part of the literature on the effects of COVID-19 on the decision-making of nascent entrepreneurs and the characteristics of new businesses. The study is important for understanding the new challenges of entrepreneurship during the pandemic.

Notably, authors such as Albert *et al.* (2023) analyzed the entry of new businesses (between 3 and 45 months old) through entrepreneurship during COVID-19 using survey data from the Global Entrepreneurship Monitor on over 24,000 Spanish households between 2005 and 2020.

The authors observed a 40% decrease in the likelihood of starting a business in 2020. Furthermore, during the pandemic, this decrease in likelihood was heterogeneous and mainly affected low- or middle-income households. High-income households fared better, as they were able to seize new opportunities during the pandemic, such as digitalization.

Amankwah-Amoah *et al.* (2021) added nuance to the view of development of digitalization during the pandemic by studying the factors that promoted or hindered the digitalization of businesses.

Their analysis showed that the use of new technologies could have negative effects on employee well-being by affecting their productivity and their work-life balance.

In summary, the literature indicates that COVID-19 hindered business creation, particularly by reinforcing the obstacles faced by entrepreneurs, such as financing difficulties, lack of liquidity, and a more complex business environment.

Moreover, during the crisis, new entrepreneurs were more motivated to start up a business out of necessity than out of opportunity.

This evolution in entrepreneurship raises questions about the job creation capacity of new entrepreneurs during and after the pandemic. The report seeks to examine this issue in Canada by identifying the factors that explained the decrease in the rate of business creation based on the characteristics of entrepreneurs.

2. Overview of the impact of COVID-19 on newly established businesses in Canada

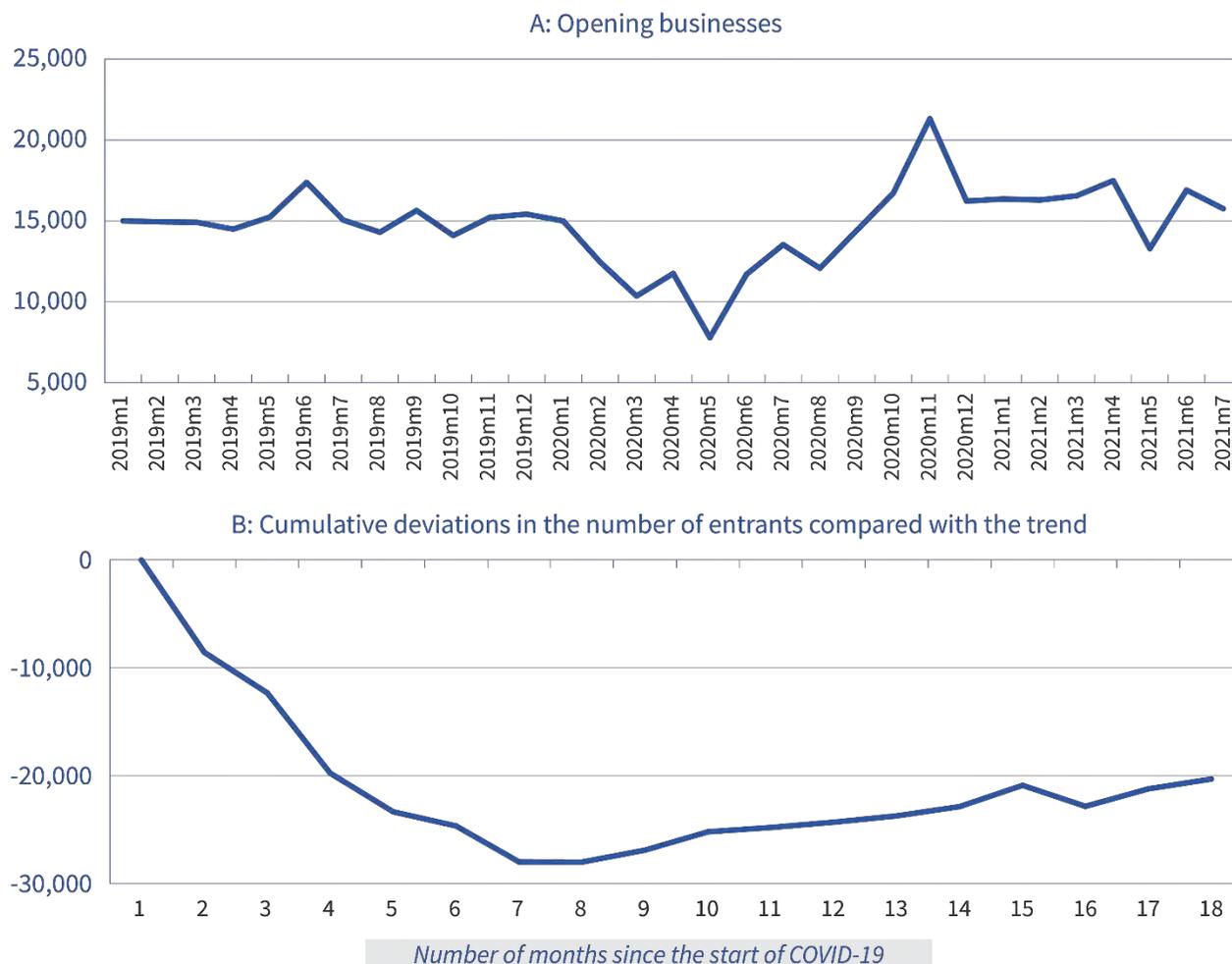
The public health crisis related to COVID-19 and the restrictions that followed likely hindered entrepreneurial activities and led to a decline in economic activity in Canada.

In fact, part A of Figure 1 shows the adjusted data for seasonal variations in the number of new businesses created in Canada, with a monthly average of 15,749 entries.

The largest declines were observed between March 2020 and June 2020, during the first wave of the epidemic, with respective reductions of 32% and 47% compared with the average level between 2015 and 2019.



Figure 1: Number of firm entries in Canada



Notes: Part A presents the seasonally adjusted number of opening businesses. These companies have at least one employee. Part B presents the cumulative deviation from the trend (between 2015 and 2019) in the number of entrants, beginning from the onset of COVID-19 (month 0 is February 2020), up to July 2021.

Sources: Statistics Canada. [Table 33-10-0722-01](#)—Experimental estimates for business openings and closures by employment size for Canada, provinces and territories, census metropolitan areas; and author's calculations.

This sharp decline in entrants occurred as restrictions related to COVID-19 were implemented and the economic situation deteriorated. As a result, this situation may have led to increased uncertainty about future economic growth forecasts, prompting some potential entrepreneurs to postpone or cancel their plans to create a business. The number of entrants began to increase starting in November 2020. Figure 1, part B, highlights the cumulative deviation, from the pre-pandemic monthly average, in the number of entrants during the COVID-19 crisis. The cumulative decline in entrants peaked about seven months after the start of the pandemic. Nearly 17 months after the pandemic had started, the gap persisted, with a deficit of 20,000 entrants. One of the objectives of this report is to examine the characteristics of opening businesses by analyzing the entrepreneurs' choices and profiles when faced with the challenges posed by the pandemic.

3. Description of the databases

The empirical analysis examines the effect of COVID-19 on entrants by taking into account the characteristics of entrepreneurs from two data sources.

The first source is the Bank of Canada's COVID-19 stringency index. The second source is GEM (Global Entrepreneurship Monitor), which provides information on entrepreneur attitudes, perceptions and characteristics.

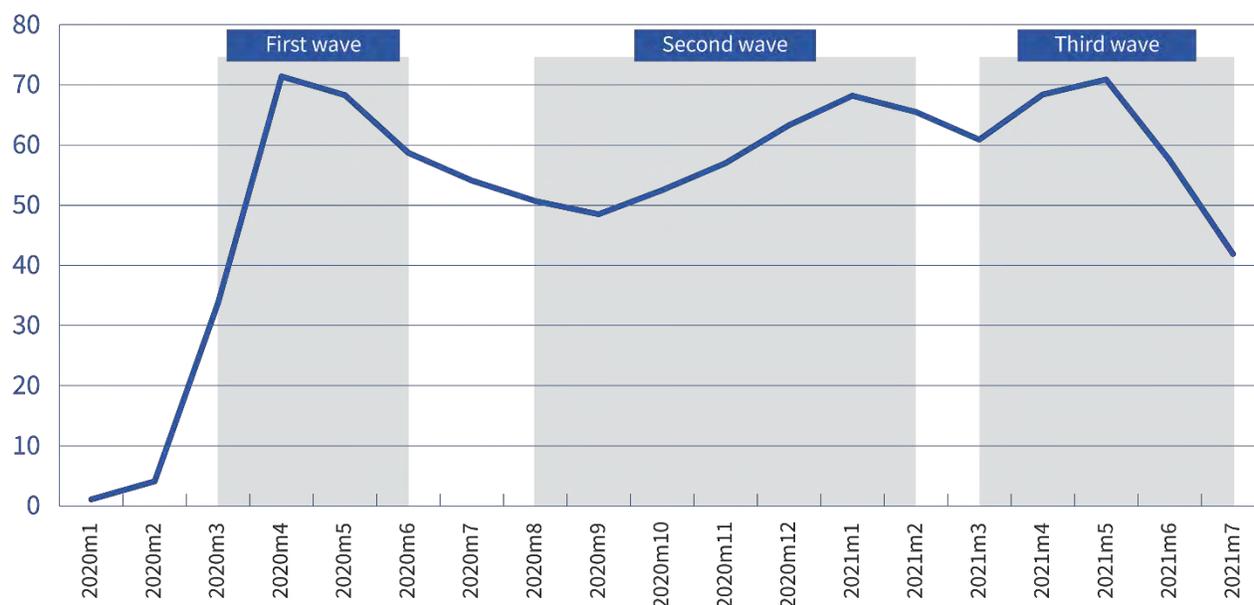
3.1. COVID-19 stringency index (Bank of Canada)

The Bank of Canada developed a health measure stringency index using a method similar to the index developed by the Blavatnik School of Government at the University of Oxford for tracking COVID-19 data (Oxford COVID-19 Government Response Tracker). The index, which ranges from 0 to 100, assesses the severity of restrictions and public awareness campaigns while considering provincial specifics.

Figure 2 illustrates the progression of the stringency index in Canada, which peaked in May 2020 during the first wave that began in March 2020.² The second wave emerged in August 2020 and the stringency peaked in early January 2021. During the third wave, the stringency index reached its peak in April 2021.

² The source of wave identification during COVID-19 comes from Health Reports, [COVID-19 infection in the Canadian household population](#).

Figure 2: COVID-19 stringency index



Note: The index compares the level of health measures and public awareness actions.

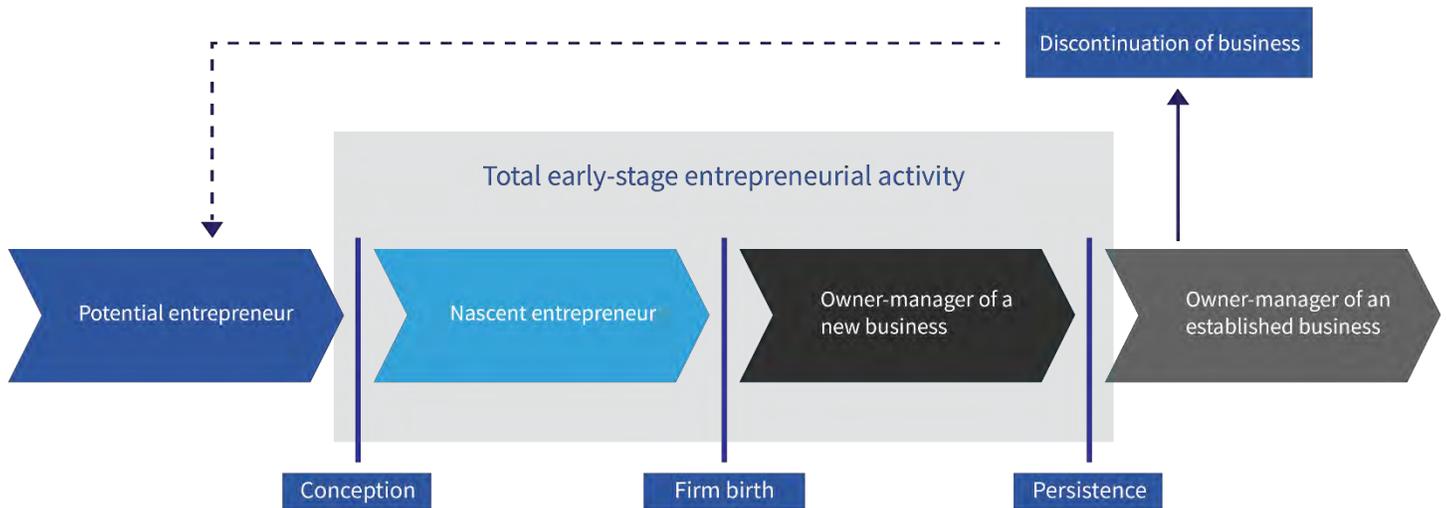
Sources: Bank of Canada; and author's calculations.

3.2. Global Entrepreneurship Monitor (GEM)

This report uses data from the GEM survey of adults, which gathers microdata from May 2015 to July 2021 with over 16,000 individuals who are representative of the Canadian adult population. This database contains important information about entrepreneurship, such as the sociodemographic characteristics of entrepreneurs and non-entrepreneurs, the perception of entrepreneurship, motivations, and attitudes about creating a business. The data come from a representative sample of the adult population in Canada. The GEM 2020 and GEM 2021 databases provide additional information on how individuals perceived the impact of the pandemic on entrepreneurial activities.

Figure 3 illustrates the GEM methodology for analyzing the entrepreneurial process. Entrepreneurial activities are considered as soon as a person plans to create a business. The first phase of startup corresponds to the creation of the business, which is to say, a business that has existed for 3 to 12 months and whose owner has not yet paid salaries for more than 3 months (referred to as early-stage businesses). Then, the second phase of startup includes businesses that have been in operation for 3 to 45 months and whose owners have paid salaries (referred to as new businesses). Early-stage entrepreneurial activities combine early stage businesses and new businesses. Businesses that have existed for more than 45 months are called established businesses until they cease operations.

Figure 3: The entrepreneurial process according to GEM



To identify nascent entrepreneurs in the GEM survey, the following question is used:

“Are you, alone or with others, currently trying to start a new business, including any self-employment or selling goods or services to others?”³

Then, high-growth companies are ranked using the expected number of employees at these companies within five years of their creation (Albert *et al.*, 2023). If the size of the company in the next five years is greater than the average size of established companies at the sector level, then this company is considered a high-growth company.⁴

Table 1 presents descriptive statistics of the key variables of the study. Column (1) provides statistics for the total population, column (2) for nascent entrepreneurs, and column (3) for individuals who are not nascent entrepreneurs. Columns (5) and (6) display the statistics for high-growth entrepreneurs and low-growth entrepreneurs, respectively. The largest proportion of nascent entrepreneurs is found in the 25 to 34 age group, with 29.7% of nascent entrepreneurs. The 25 to 44 age group is the most favourable for starting a business (51.9%). The 35 to 44 age group is the second most represented group among nascent entrepreneurs. Table 1 also indicates that nascent entrepreneurs have a higher level of postsecondary and university education than the rest of the Canadian population (81.5% versus 77%). Canadian men are more likely to start a business than Canadian women (42.8% of new entrepreneurs are women).

³ According to GEM, entrepreneurs are considered to be nascent if they have engaged in concrete activities in the past 12 months, are the owner or one of the owners of the startup business, and have not received any salary or compensation for more than three months.

⁴ For robustness, GEM’s definition for classifying high-potential companies is also used. A company is classified as having high growth if the expected growth in the number of employees over the next five years exceeds 50% with a minimum of 10 employees.

Table 1: Descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total population	Nascent entrepreneur	Rest of the population	Difference between (2) and (3) (p-value in parentheses)	High-growth entrepreneur	Low-growth entrepreneur	Difference between (5) and (6) (p-value in parentheses)
Age category							
Ages 18 to 24	0.129	0.162	0.125	0.037*** (0.007)	0.147	0.165	-0.018 (0.583)
Ages 25 to 34	0.213	0.297	0.204	0.093*** (0.000)	0.271	0.302	-0.031 (0.474)
Ages 35 to 44	0.213	0.222	0.211	0.011 (0.481)	0.240	0.219	0.021 (0.628)
Ages 45 to 54	0.235	0.195	0.240	-0.045*** (0.002)	0.209	0.192	0.017 (0.629)
Ages 55 and over	0.210	0.124	0.220	-0.096*** (0.000)	0.133	0.122	0.011 (0.740)
Education category							
High school diploma or lower	0.226	0.185	0.230	0.045*** (0.002)	0.182	0.186	-0.004 (0.893)
Postsecondary diploma	0.638	0.660	0.635	0.025 (0.175)	0.632	0.665	-0.033 (0.463)
Master's or doctoral degree	0.136	0.155	0.135	0.020 (0.118)	0.186	0.149	0.037 (0.284)
Gender							
Female	0.493	0.428	0.501	0.073*** (0.000)	0.290	0.454	-0.164*** (0.000)
Employment status							
Full-time or part-time employee	0.681	0.602	0.690	-0.088*** (0.000)	0.617	0.600	0.017 (0.721)
Does not work	0.058	0.045	0.059	-0.014* (0.082)	0.035	0.047	-0.012 (0.424)
Retired or student	0.131	0.035	0.141	-0.106*** (0.000)	0.011	0.039	-0.028*** (0.018)
Retired or student	0.130	0.318	0.110	0.208*** (0.000)	0.337	0.314	0.023 (0.620)
Income category							
First tercile	0.308	0.327	0.306	0.021 (0.229)	0.268	0.339	-0.071 (0.101)

Second tercile	0.355	0.360	0.354	0.006 (0.745)	0.306	0.370	-0.064 (0.158)
Third tercile	0.337	0.313	0.340	-0.027 (0.106)	0.426	0.291	0.135*** (0.003)
Perception							
Capacity, experience	0.494	0.771	0.461	0.310*** (0.000)	0.858	0.754	0.104*** (0.003)
Fear of failure	0.497	0.401	0.507	0.106*** (0.000)	0.330	0.424	-0.094*** (0.036)
Expected opportunities in the next six months	0.456	0.644	0.434	0.210*** (0.000)	0.667	0.640	0.027 (0.540)
Number of observations	16,273	1,619	14,654	-	255	1,364	-

Notes: In columns (4) and (7), a chi-square test was carried out to determine the significance of the difference in the mean of the sociodemographic variables respectively between nascent entrepreneurs and other adults in the Canadian population, and between high-growth entrepreneurs and low-growth entrepreneurs. The statistics table was restricted using a weighting of the population aged 18 to 64, aligning more closely with the country's weighting according to the GEM survey. *indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

The statistics indicate that 60.2% of nascent entrepreneurs hold a full-time or part-time job, compared with 69% for the rest of the population. Furthermore, 31.8% of Canadians involved in starting up businesses are self-employed.⁵

The GEM survey classifies individuals engaged in the startup phase of entrepreneurship based on their income level. About 68.7% of nascent entrepreneurs have low or middle income, versus 66% for the rest of the population. However, this difference is not statistically significant. Individual perception of entrepreneurship is an important indicator of future entrants.

⁵ According to the Global Entrepreneurship Monitor (GEM), the main difference between self-employed workers and entrepreneurs lies in the ambition and scale of their activity. Self-employed workers focus on creating their own jobs to generate personal income, without aiming for significant expansion or hiring staff. Meanwhile, the aim of entrepreneurs to expand their business, innovate, and have a broader economic impact by broadening their activities and hiring more people. For more information, see the GEM report [here](#).

About 77.1% of Canadian nascent entrepreneurs believe they have the skills and experience necessary to start up a business, versus 46.1% for the rest of Canadians. The fear of failure is significantly lower among nascent entrepreneurs (40.1%) than in the rest of the population (50.7%). About 64.4% of nascent entrepreneurs believe there are opportunities to create a business in the next six months versus 43.4% for the rest of the population.

Columns (5) and (6) differentiate the descriptive statistics based on the job creation potential of nascent entrepreneurs in the next 5 years. The disparity between women and men is more pronounced among high-growth entrepreneurs (29% women) than among low-growth entrepreneurs (45.4% women). Nearly 42.6% of nascent high-growth entrepreneurs belong to the high-income class. This proportion decreases to 29.1% for low-growth entrepreneurs. The job creation potential of entrepreneurs is very unequal and depends on the nascent entrepreneur's gender and income level.

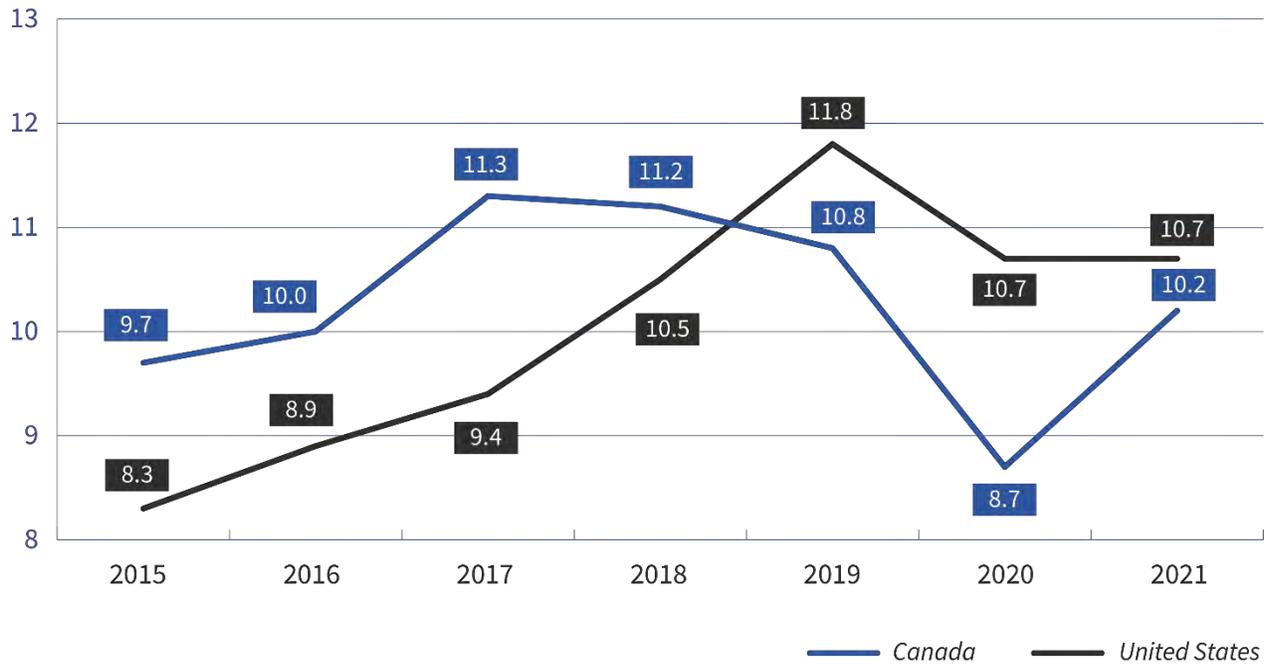
About 85.8% of Canadians who start a high-growth company feel they are sufficiently experienced and competent to create a company.

The job creation of new entrepreneurs largely depends on the fear of entrepreneurship, which measures entrepreneurial risk. About 33% of nascent high-growth entrepreneurs fear starting a business versus 42.4% for low-growth entrepreneurs.

Figure 4 shows the change in the proportion of nascent entrepreneurs in Canada and the United States between 2015 and 2021. It highlights the recovery of business creation in Canada in 2021, with a proportion of nascent entrepreneurs rising to 10.2%, compared with 8.7% in 2020. In contrast, this proportion stagnated in the United States in 2021.

This recovery in Canada comes after a decrease in 2020 of 2.1 percentage points (from 10.8% in 2019 to 8.7%), while the decline was more moderate in the United States, at 1.1 percentage points (from 11.8% in 2019 to 10.7%).

Figure 4: Proportion of nascent entrepreneurs in Canada and the United States



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021, (Canada and the United States); and author's calculations.

Nevertheless, the impact of the COVID-19 pandemic on the decision to start a business in Canada and the United States may vary depending on the context of the two countries, particularly the stringency of COVID-19 measures, the speed at which the virus spread, and the government assistance and grants to mitigate the economic effects of the pandemic.

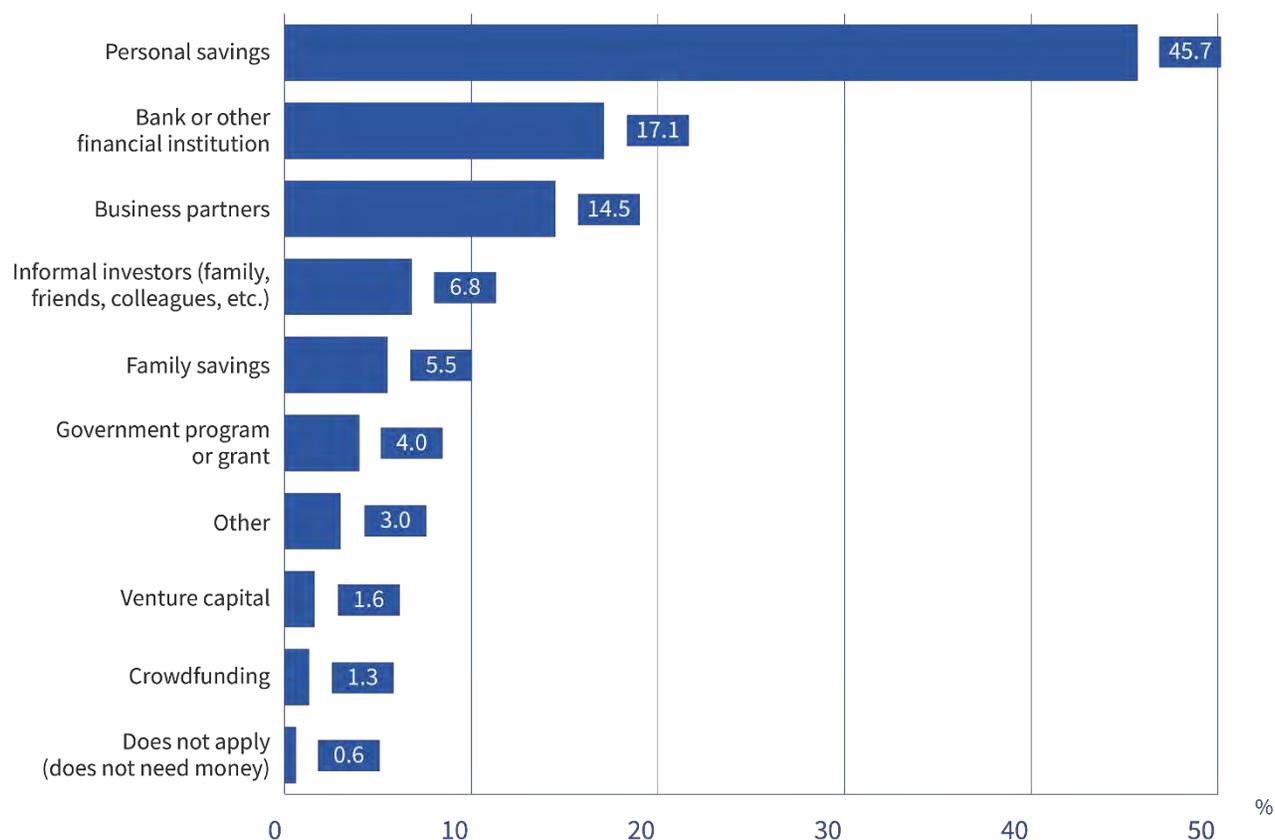
3.3. Effects of the pandemic on business creation

This section explores the various ways in which COVID-19 affected entrepreneur decisions.

3.3.1. Sources of financing

Financing is a major challenge for Canadian entrepreneurs. In 2019, the GEM survey revealed that most of the funds needed to start a business came primarily from personal savings (45.7%), followed by financial institutions (17.1%), contributions from business partners (14.5%), and informal investors (6.8%) (see Figure 5).

Figure 5: Sources of financing for starting up new businesses

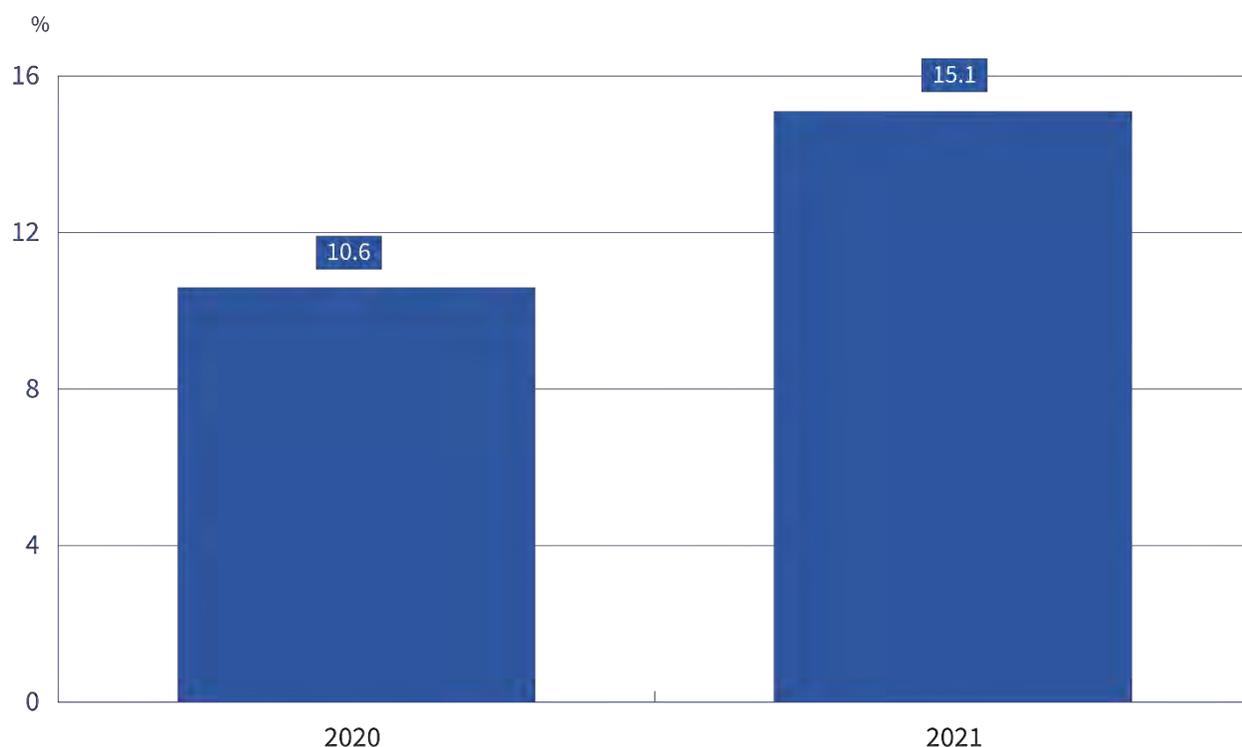


Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2019; and author's calculations.

Government programs or grants accounted for 4% of the sources of financing for new entrepreneurial projects.

Figure 6 shows that informal investors⁶ and angel investors⁷ played a significant role in financing new businesses in Canada during the pandemic. The rate of active informal investors increased 4.5 percentage points in 2021 compared with 2020.

Figure 6: Proportion of informal investors and angel investors in Canada



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2020–2021; and author’s calculations.

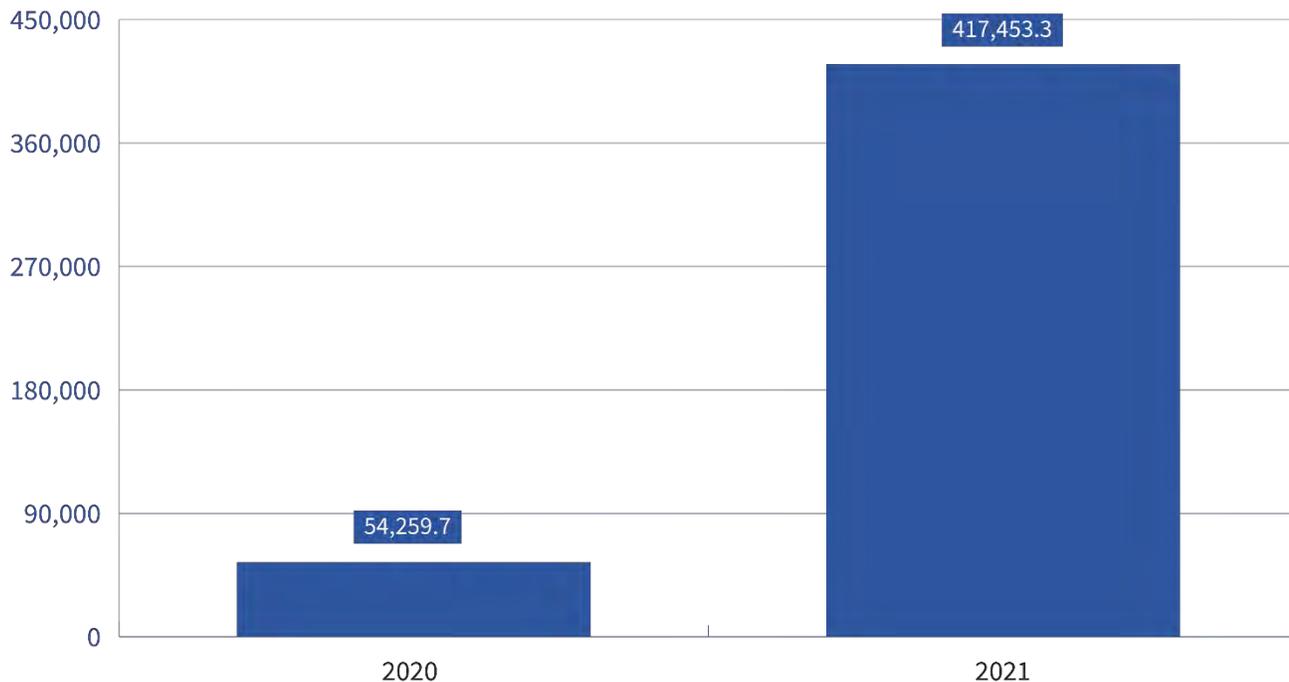
Figure 7 shows that average informal investments significantly increased in 2021. The average amount of informal investments increased from \$54,259.70 in 2020 to \$417,453.30 in 2021.⁸

⁶ Informal investors include family members, coworkers, friends, and foreign investors outside the family circle.

⁷ [Angel investors](#) are wealthy, experienced businesspeople who invest their time and money in high-growth businesses in exchange for equity (see [here](#)).

⁸ These statistics should be interpreted with caution due to the small number of observations.

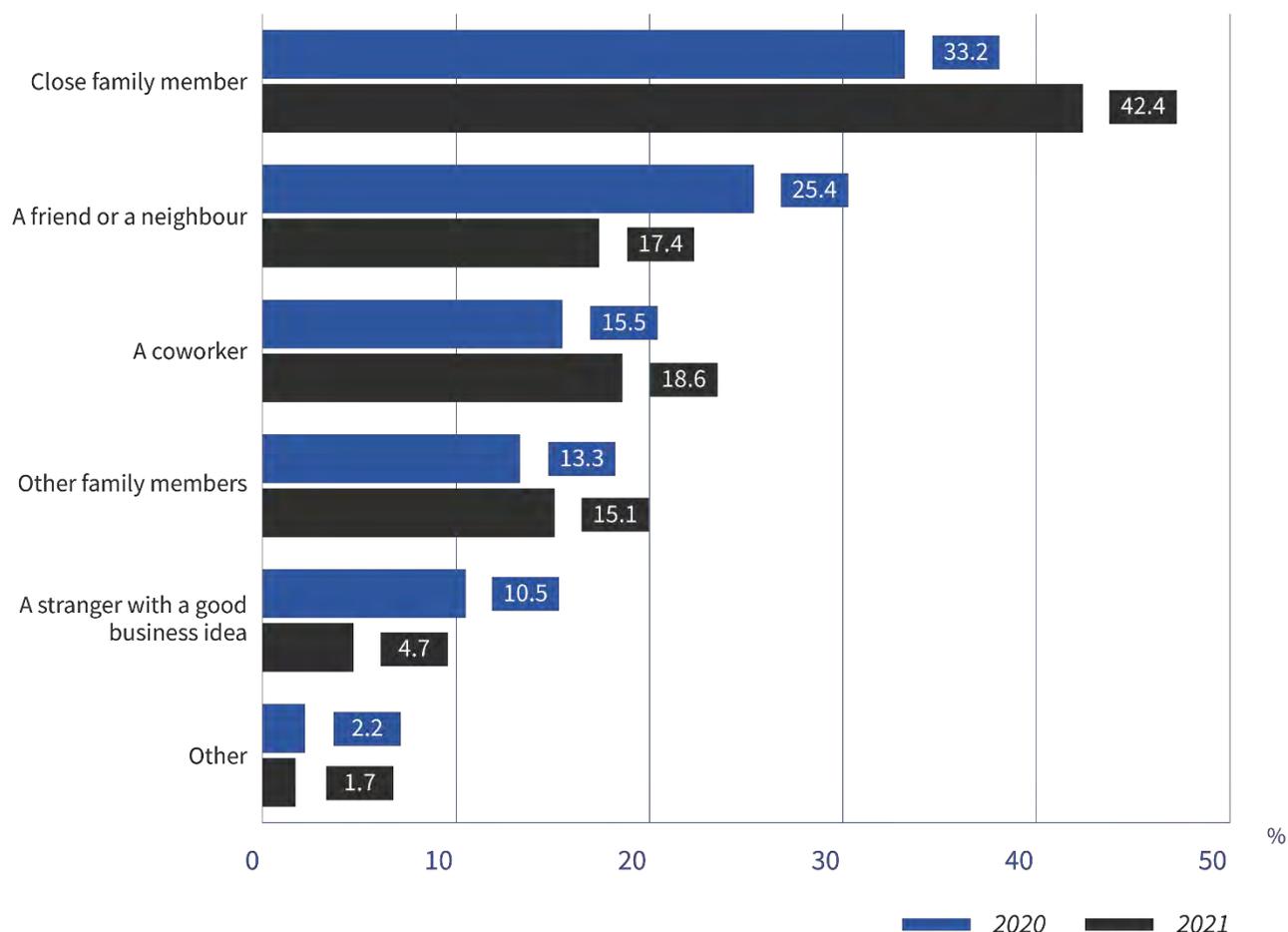
Figure 7: Average amount of informal investments during COVID-19



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2020–2021; and author’s calculations.

As shown in Figure 8, Canadians invested more in family businesses than in the businesses of those who are outside their social circle. Investments within the family increased by 9.2 percentage points in 2021 (42.4% in 2020). However, investments in businesses owned by strangers decreased by 5.8 percentage points (10.5% in 2020). Informal investors favoured their own families, which could explain the notable increase in amounts invested in 2021.

Figure 8: Personal relationships of informal investors

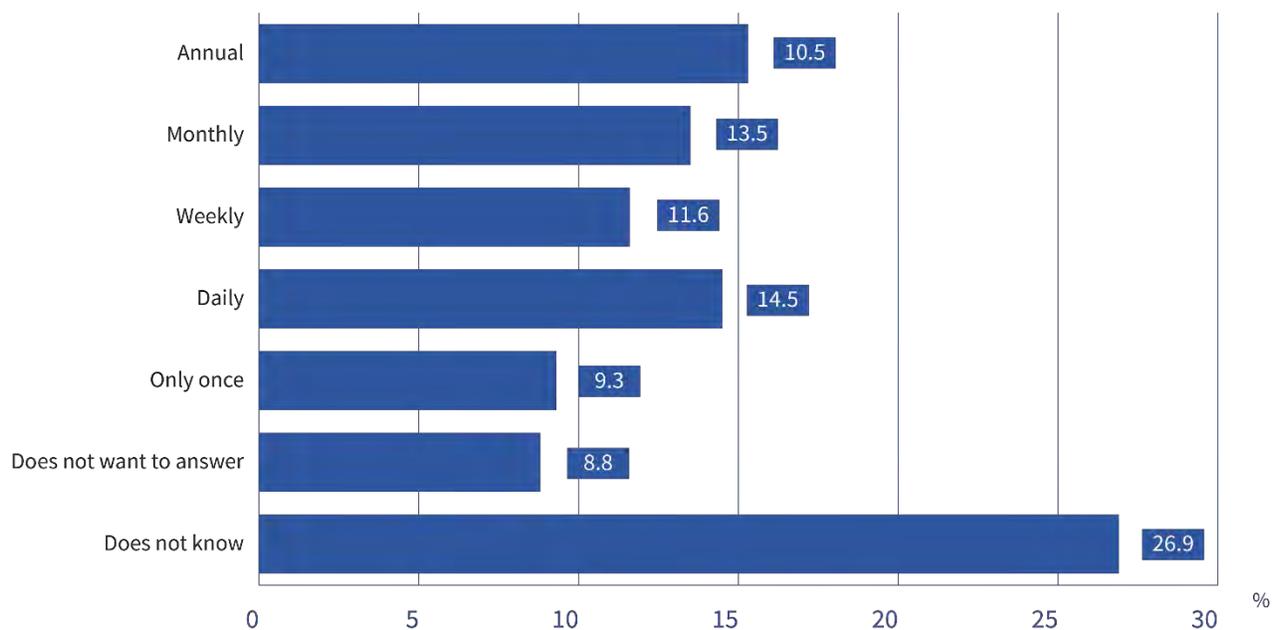


Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2020–2021; and author’s calculations.

In 2021, GEM assessed the proportion of Canadian businesses that benefited from public support measures for businesses in response to the COVID-19 pandemic.⁹ Figure 9 shows that 64.2% of nascent entrepreneurs reported receiving assistance or grants from the government in 2021.

⁹ The Government of Canada implemented emergency policies to assist businesses in response to the COVID-19 pandemic. The Canada Emergency Business Account (CEBA) program offered interest-free loans of up to \$60,000 to small businesses and non-profit organizations. The Canada Emergency Wage Subsidy (CEWS) was a grant that could correspond to up to 75% of the eligible remuneration paid to each eligible employee by the designated entity (eligible employer) that qualified for it, up to a maximum of \$847 per week from March 15, 2020, to September 25, 2021, for a total of 80 weeks consisting of 20 periods of four weeks, with the possibility of extending it further until November 30, 2021. The Canada Emergency Commercial Rent Assistance (CECRA) program for small businesses allowed eligible commercial property owners to reduce or waive rent for small business tenants affected by COVID-19 by at least 75% for the period from April to September 2020. The Government of Canada introduced the Highly Affected Sectors Credit Availability Program in 2021, in collaboration with the Business Development Bank of Canada (BDC), to help Canadian businesses, such as those in the tourism, hospitality, arts and culture, and air transportation sectors, the revenues of which have decreased by 50% or more due to COVID-19.

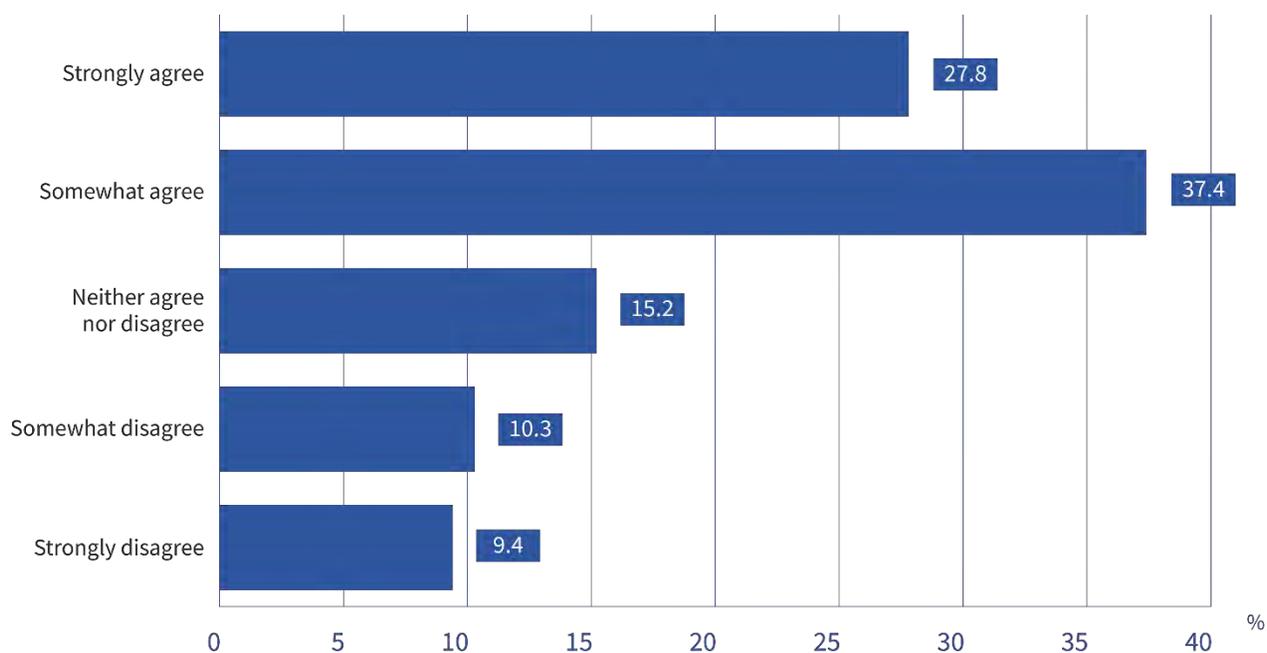
Figure 9: Government assistance in starting a business



Sources: Global Entrepreneurship Monitor, *Adult Population Survey, 2021*; and author's calculations.

According to Figure 10, more than two-thirds (65.2%) of companies in the launch phase believed that government actions mitigated the economic impacts of the pandemic.

Figure 10: Perception of the effectiveness of government assistance during the COVID-19 pandemic



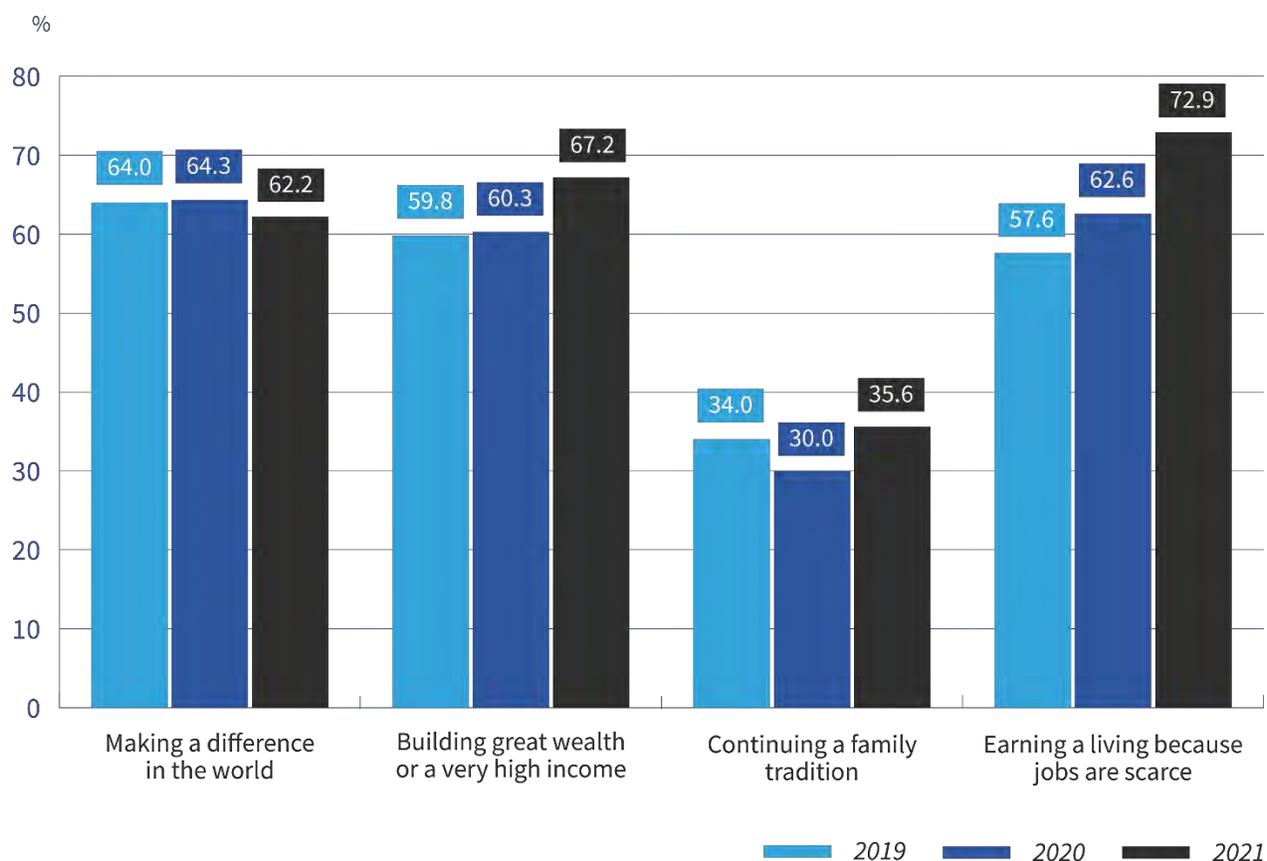
Sources: Global Entrepreneurship Monitor, *Adult Population Survey, 2021*; and author's calculations.

After the 2020 crisis, the recovery in entrepreneurship occurred amid favourable business conditions and government support in 2021. These measures may have encouraged Canadians to create businesses in a more favourable business environment.

3.3.2. Motivations for creating a business

Figure 11 shows the proportions of nascent entrepreneurs according to their category of motivation (to make a difference in the world; to build great wealth or very high income; to continue a family tradition; and to earn a living because jobs are scarce).

Figure 11: Motivations for creating a business



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2019–2021; and author’s calculations.

In 2021, 62.2% of nascent entrepreneurs were motivated by a desire to change the world (64.3% in 2020). Nearly 67.2% of Canadians who started a business were motivated by the desire to increase their income (60.3% in 2020). Continuing a family tradition was cited as a source of motivation by 35.6% of nascent entrepreneurs.

One of the main reasons to create a business in Canada was the lack of jobs during the pandemic. About 72.9% of Canadians turned to entrepreneurship out of necessity in 2021, an increase of 10.3 percentage points compared with 2020. This increase in necessity-based entrants during COVID-19 likely had an impact on job creation and contributed to the decrease in the average size of opening businesses in Canada.

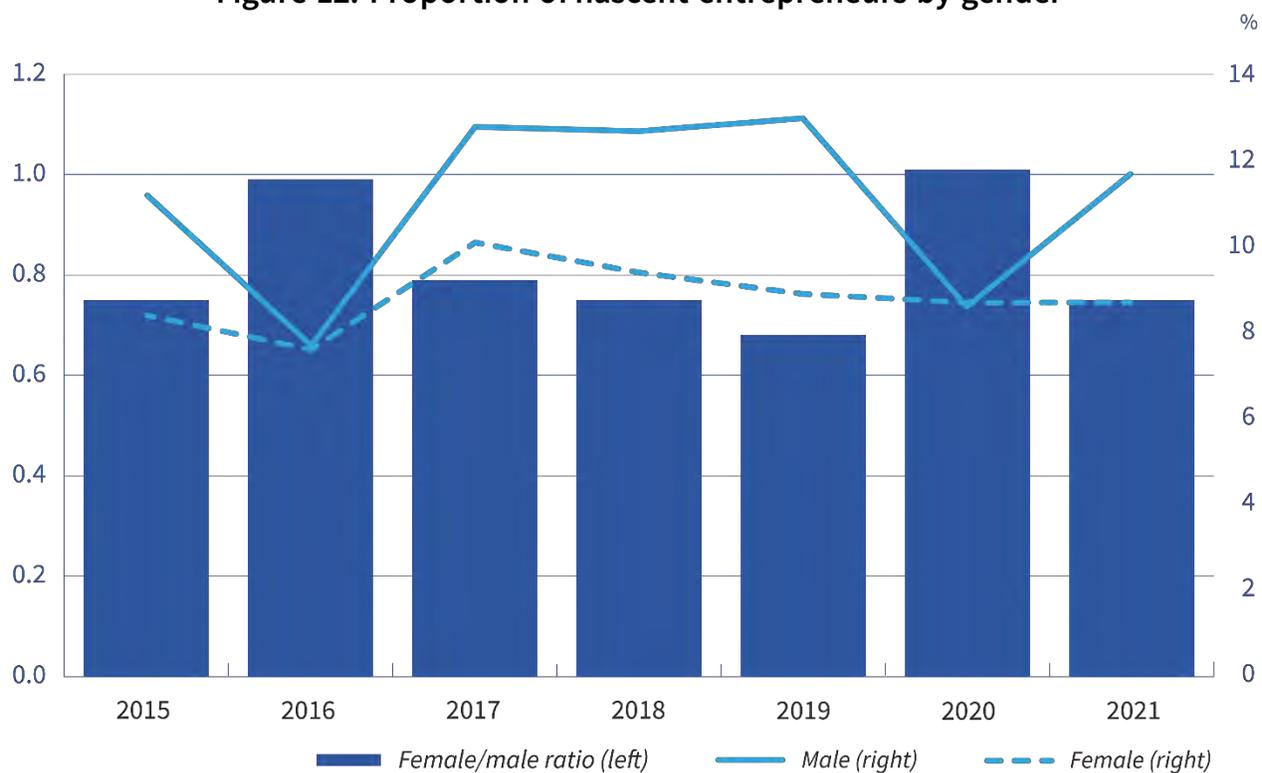
3.3.3. Gender gap during the pandemic

COVID-19 may have had varied effects on Canadian entrepreneurs depending on their gender. It is important to analyze how the proportion of startup entrepreneurs changed according to gender and to examine the causes based on gender-disaggregated data regarding time spent on childcare, business management, and the ability to work from home.

Figure 12 illustrates the distribution of nascent entrepreneurs by gender. Before the pandemic, men outnumbered women among nascent entrepreneurs, with a female-to-male ratio of 0.7 in 2019. In 2020, the share of early-stage businesses owned by men decreased by 4.4 percentage points (from 13% in 2019 to 8.6% in 2020). This decrease was less pronounced for businesses owned by women (from 8.87% in 2019 to 8.67% in 2020), thus bringing the female-to-male ratio closer to parity. In 2021, the increase in the number of new entrepreneurs mainly involved Canadian men (+3.1 percentage points), which resulted in a return of the female-to-male ratio to 0.7 for business creation.



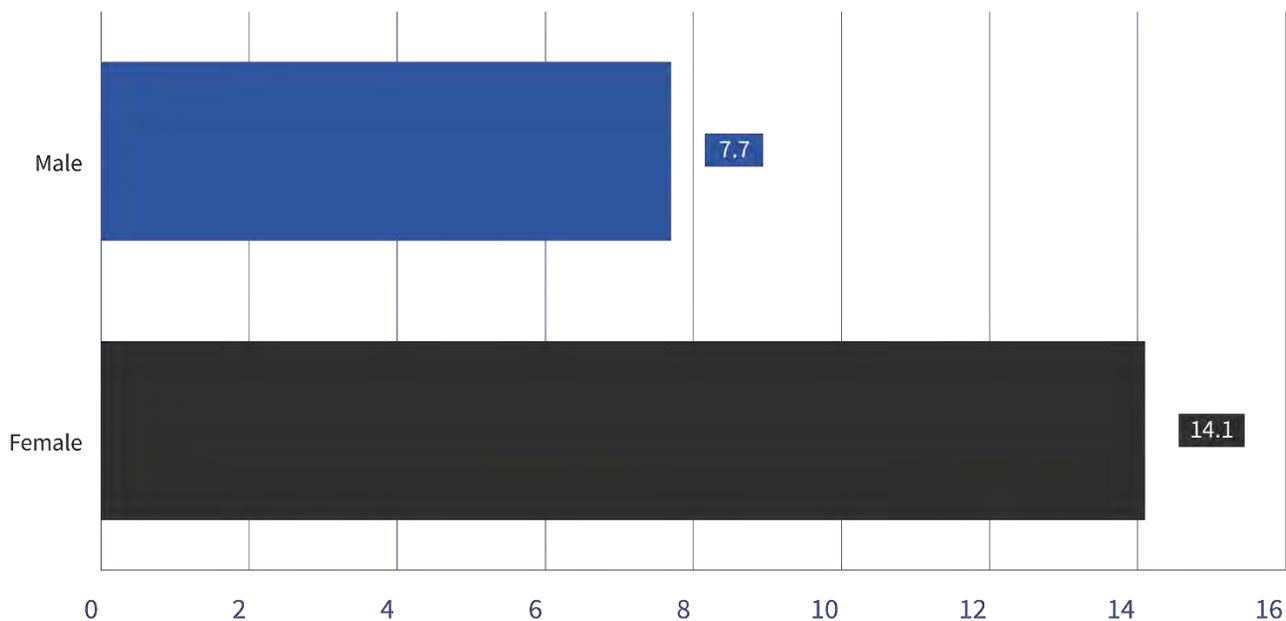
Figure 12: Proportion of nascent entrepreneurs by gender



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

To shed light on this disparity between men and women entrepreneurs in 2021, Figure 13 illustrates the number of hours per week dedicated to childcare in Canada. In 2021, women spent an average of 14.1 hours per week, versus 7.7 hours for men.

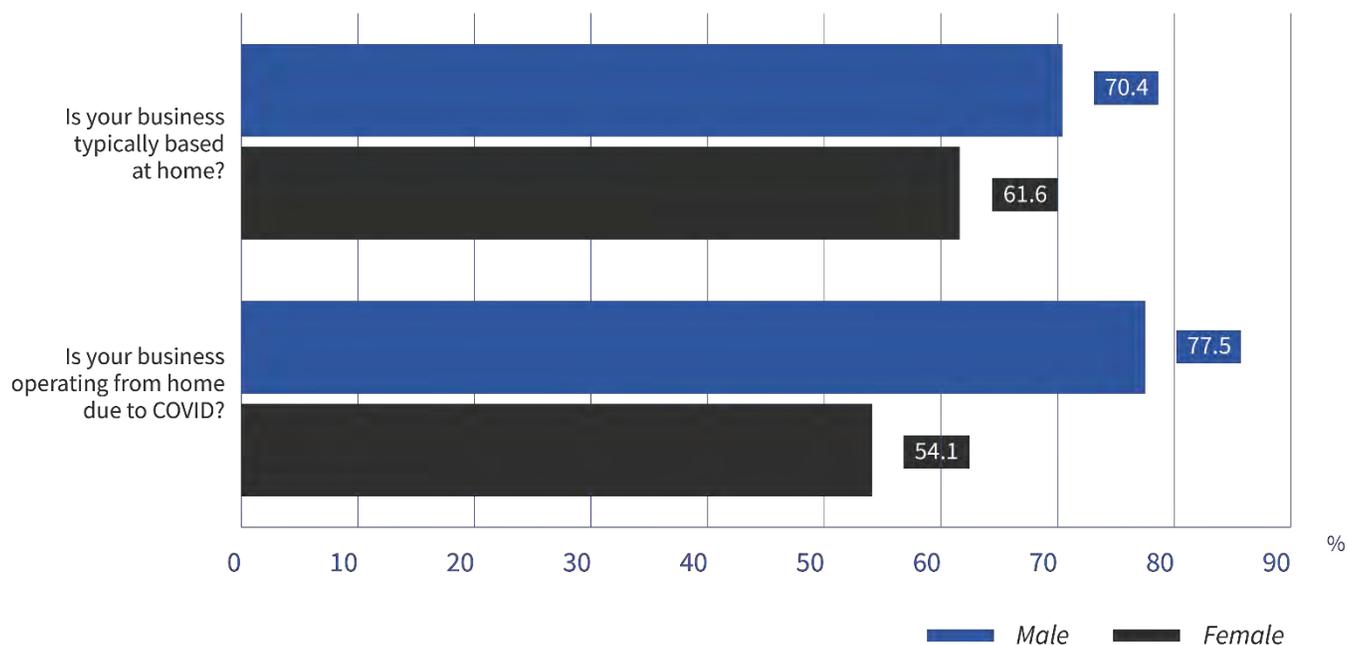
Figure 13: Number of hours dedicated to children's activities



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

According to Figure 14, male business owners in the startup phase in Canada worked from home more often during the pandemic than females, with respective proportions of 77.5% versus 54.1%. The pandemic led to a 7.1 percentage point increase in the share of home-based businesses for men, while it caused a 7.5 percentage point decrease for women-owned businesses.

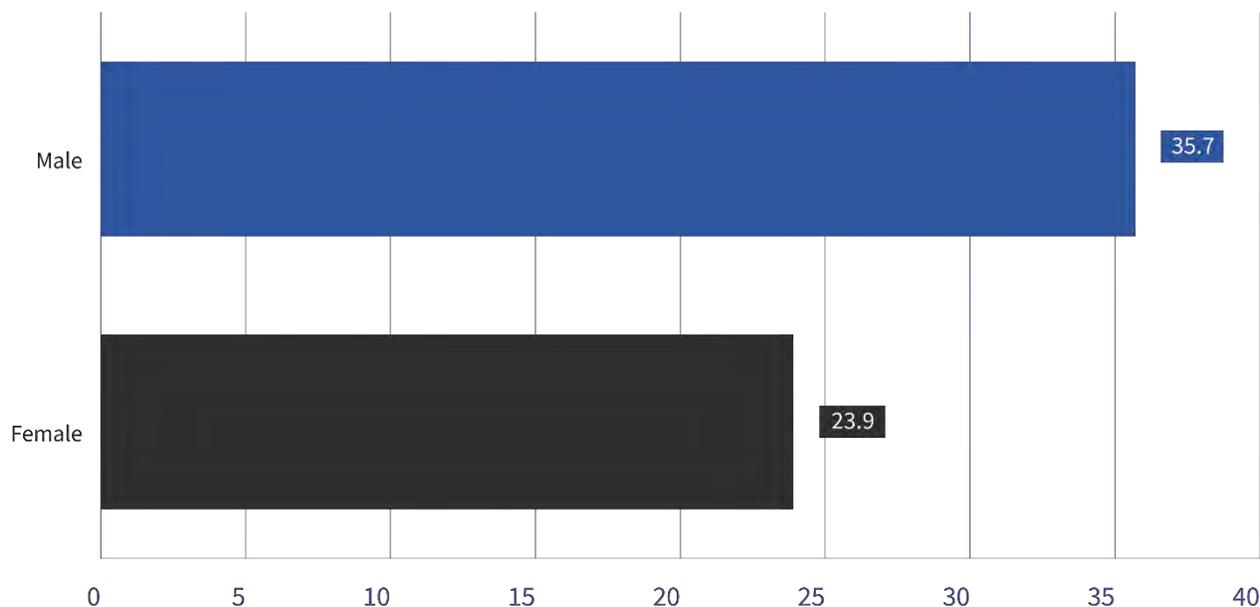
Figure 14: Operation of home-based startup businesses in Canada



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

In 2021, GEM examined the number of hours worked in startup companies by gender. Figure 15 shows that Canadian men spent an average of 35.7 hours per week in their businesses at the startup stage, while women dedicated 23.9 hours to it.

Figure 15: Number of hours dedicated to operations in early-stage businesses by gender



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

The effect of COVID-19 on the decision to start up a business differs by gender. Overall, the pandemic had a more significant negative impact on men’s decisions to start up a business (-1.3 percentage points versus -0.2 percentage points for women).

Conversely, in 2021, the GEM survey shows a stronger recovery in business creation among men, possibly resulting in a wider gap between women and men in business creation in the short term.

Several factors could explain this disparity¹⁰ in Canada. For example, in 2021, women-led early-stage businesses that were not often home-based, which made them more vulnerable to COVID-19-related restrictions.

In addition, women spent more time on childcare. As a result, women spent 1.5 times less time on their companies than men in 2021.

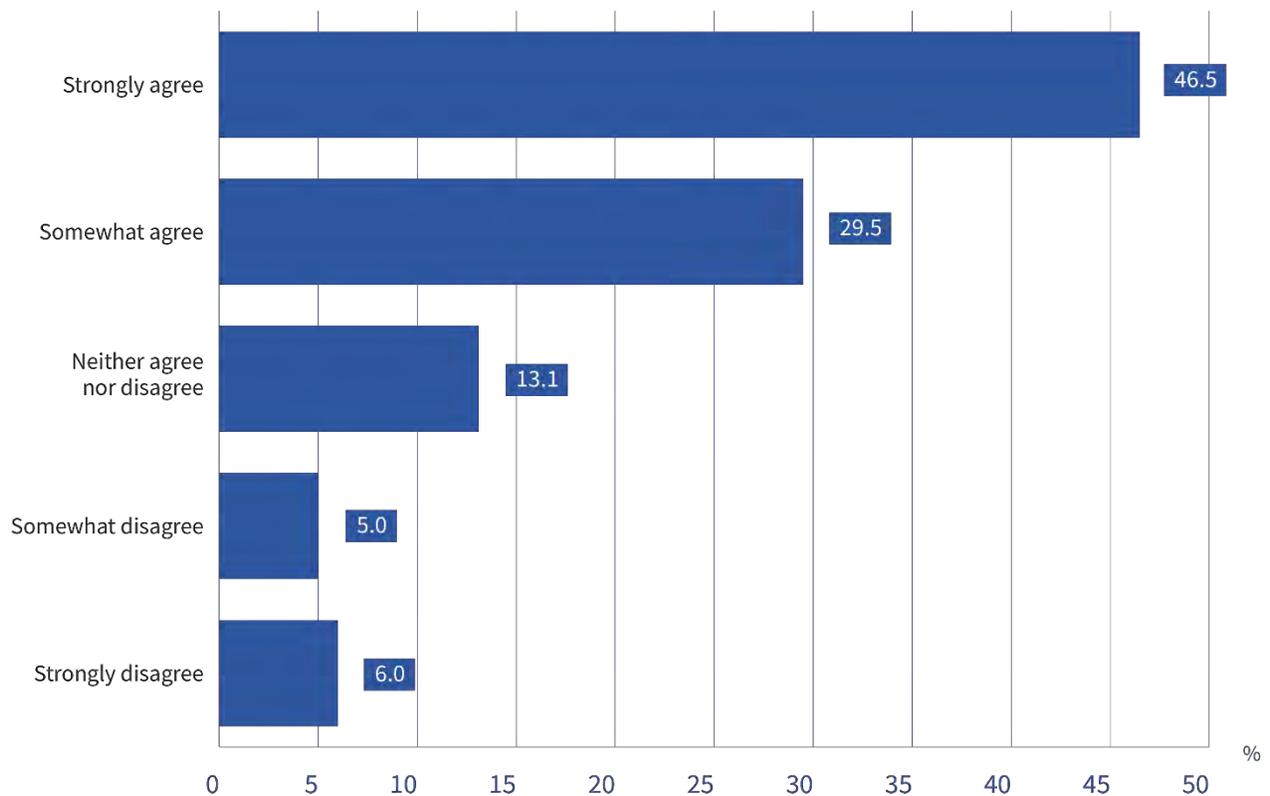
¹⁰ The lines of business in which women operate may help explain the disparity between men and women. Women were more concentrated in the service sector: 89.9% compared with 68.9% for men in February 2020. This concentration of women’s employment in these sectors likely had an impact (see the report [here](#)).

3.3.4. Perception during the pandemic

Figures 16, 17, and 18 below are based on a set of questions added in 2020 and/or 2021 to study and show the impact of the pandemic on the decision to create a business.

Figure 16 shows the perception of delays in the startup of a business due to the pandemic in 2021. The pandemic caused delays in the startup of businesses for 76% of entrepreneurs in the startup phase. These delays appear to have made it more difficult to start up a business.

Figure 16: Delay in starting up businesses during the pandemic

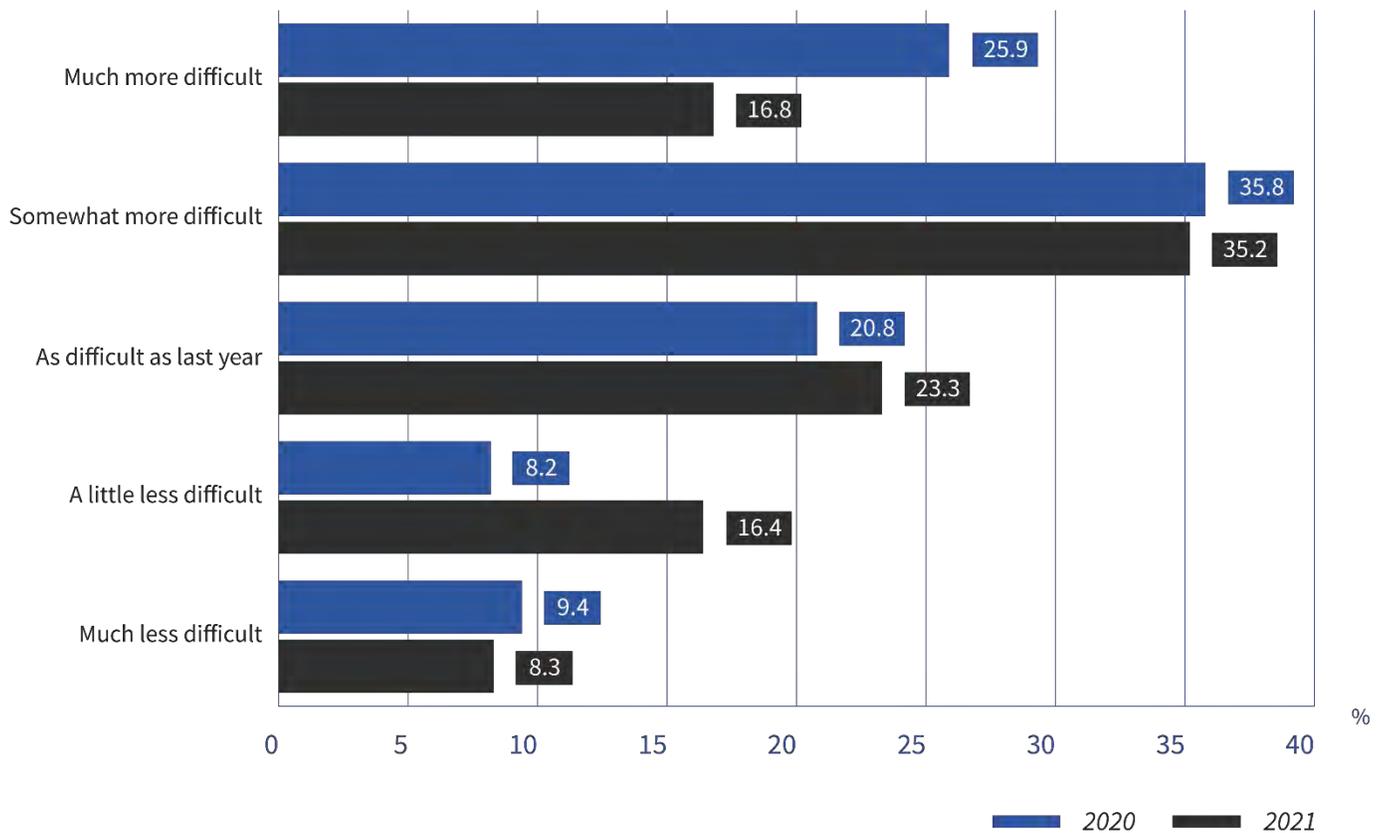


Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Figure 17 illustrates the difficulty experienced in starting up a business during COVID-19. Starting a business was more difficult for 61.7% of new entrepreneurs in 2020 than in 2019.

In 2021, 52% of Canadian entrepreneurs felt that the situation had worsened compared with 2020, and 23.3% did not see any difference.

Figure 17: Difficulty in starting up a business compared with the previous year

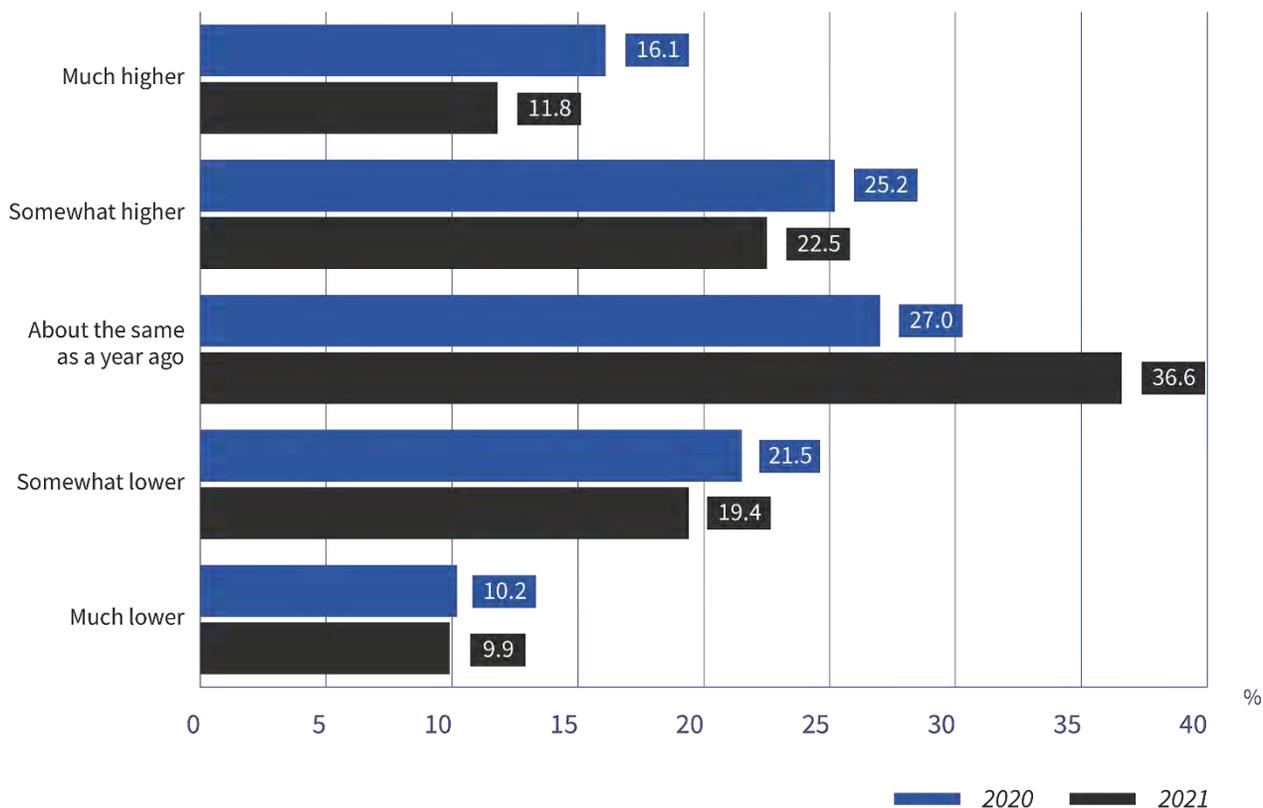


Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

These results could be related to a deterioration in business growth expectations during the public health crisis.

Figure 18 shows the anticipated growth of businesses compared with the previous year. This indicator is useful for entrepreneurs to plan for the hiring of additional employees in the future. About 41.3% of Canadian startup entrepreneurs anticipated business growth in 2020 compared with 2019. Growth prospects deteriorated in 2021, as only 34.3% of new entrepreneurs anticipated higher growth compared with 2020.

Figure 18: Business growth expectations compared with the previous year



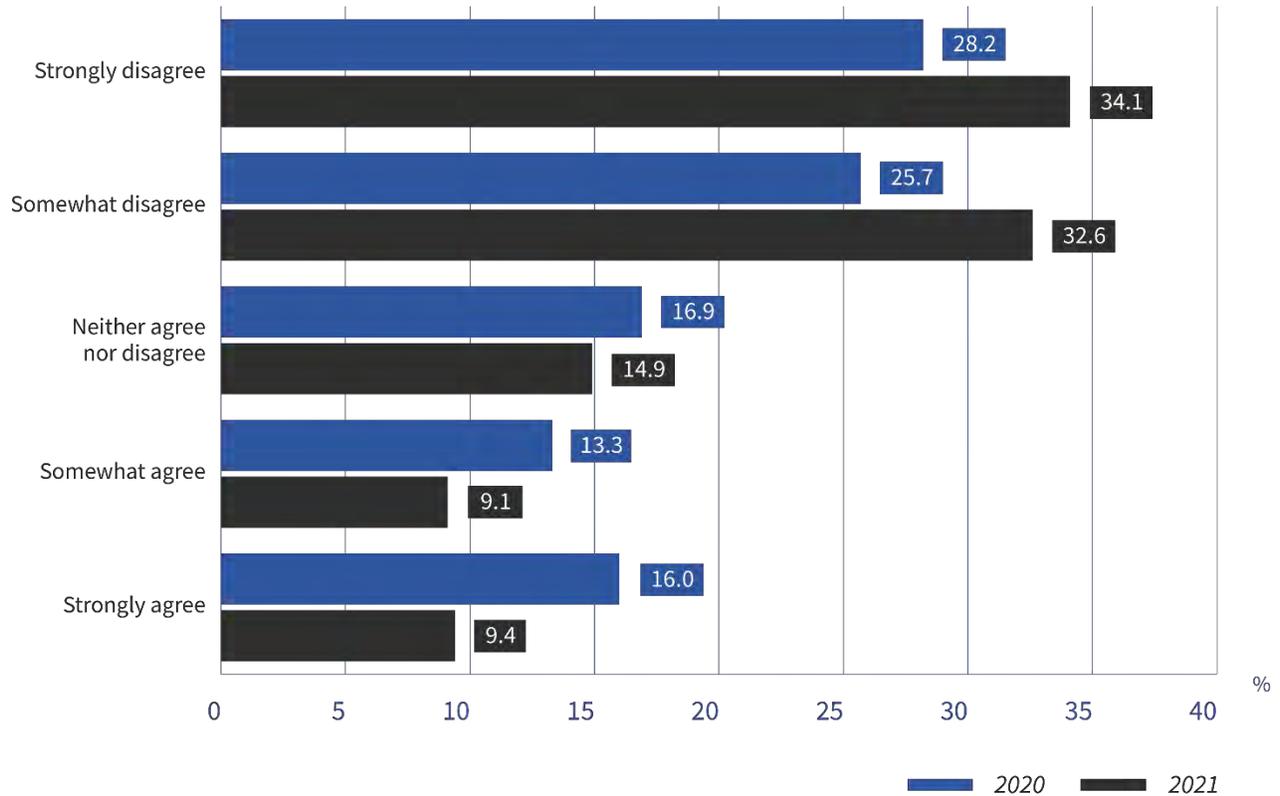
Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

In summary, the COVID-19 pandemic had a negative impact on business creation due to several factors. Indeed, the slowdown in startup business activity, combined with the difficulty of launching a business and the reduction in growth prospects, likely posed significant obstacles during the pandemic.

3.3.5. New opportunities during the pandemic

The COVID-19 pandemic prompted Canadian entrepreneurs to adapt their business projects to meet the new challenges posed by the public health crisis. Figure 19 shows the proportion of nascent entrepreneurs who perceived new opportunities during the pandemic. In 2020, 29.3% of nascent entrepreneurs saw new opportunities during the pandemic. However, this percentage decreased to 18.5% in 2021.

Figure 19: Opportunities during COVID-19

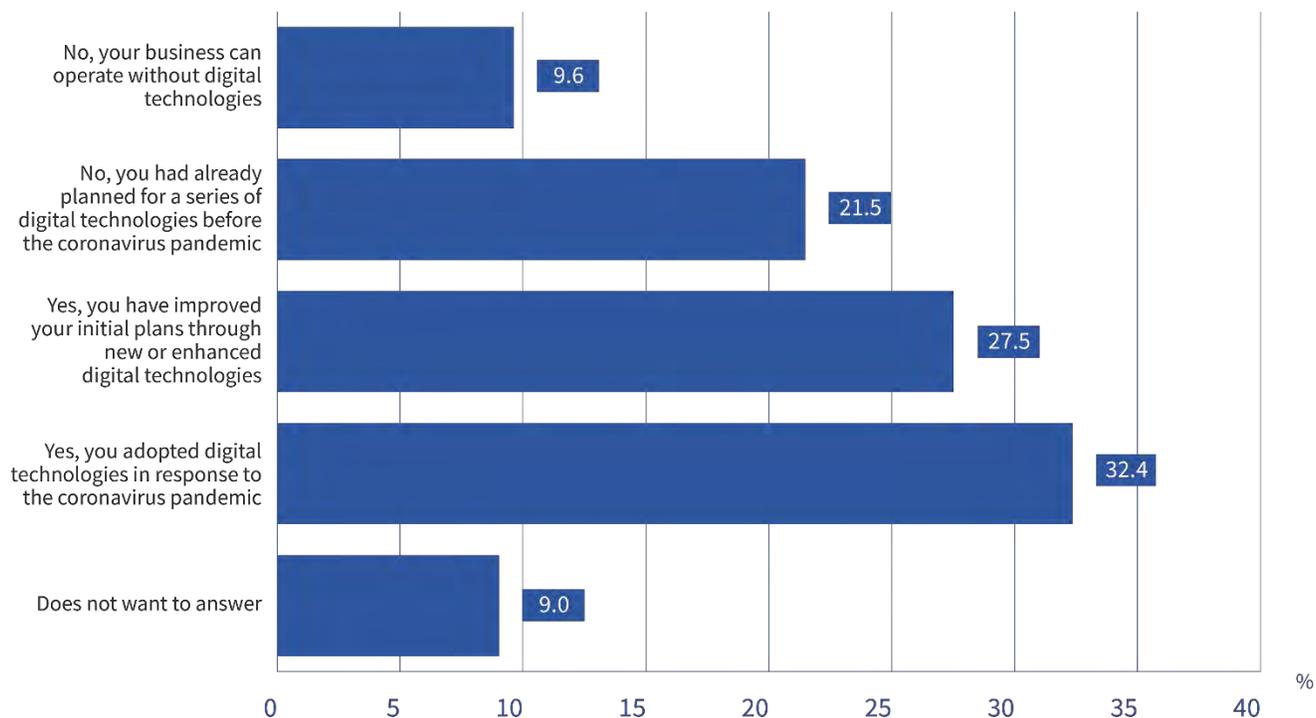


Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

The public health crisis related to COVID-19 eventually encouraged the development and use of new technologies and digitalization to start up and manage a new business, despite the constraints of physical distancing and the strict rules related to COVID-19 health measures.

The COVID-19 pandemic prompted about 32.4% of nascent entrepreneurs to start digital businesses (Figure 20). In addition, 27.5% of entrepreneurs optimized their operating processes through new or improved technologies in 2021 during the pandemic.

Figure 20: Use of digital technologies by early-stage businesses in response to the COVID-19 pandemic



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

The following section presents regression-based analyses to assess the pandemic's impact on the gap between the proportion of nascent entrepreneurs in the Canadian public and its long-term level.

Then, the factors that influence the decision to start up a business and the characteristics of entrepreneurs starting out during the pandemic are analyzed.

4. Empirical strategy

The aim of the empirical approach is to assess the impact of the COVID-19 pandemic on the decision to start a business, based on the entrepreneur's observable characteristics.

The empirical strategy developed is an adaptation of the one used by Albert *et al.* (2023) to the Canadian context according to the following criteria:

- The analysis focuses on startups that have existed for less than a year and whose owners have not paid salaries for more than three months. These companies are considered to be entry-level businesses.
- The empirical analysis considers the immediate effects of the stringency of COVID-19 health measures on the decision to start up a business; the stringency of these measures is considered based on the Canadian province.

According to the specification of Albert *et al.* (2023), the variables $ent_dem_{i,p,t}^s$ show individual i in province p ¹¹ during year t starting up a business of type $s \in \{a,f\}$ with a corresponding to a startup and f a high-growth startup.

¹¹ The provinces included in the sample are: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, British Columbia.

To better understand the effect of the COVID-19 crisis on the decision to start up a business, a probit model is used for the econometric estimates. More specifically, the latent decision to start up or not a type s business is modelled as follows:

$$ent_dem_{i.p.t}^{*s} = \beta_0^s + \beta_1^s COVID_19_t + \sum_{k=1}^K \gamma_k^s X_{i,t}^k + \sum_{j=1}^J \delta_j^s Z_{i,t}^k + \theta_p + \varepsilon_{i.p.t}, \quad (1)$$

where $ent_dem_{i.p.t}^{*s}$ denotes the latent variable that represents the probability of an individual starting a business. $COVID_19_t$ is equal to 1 during the pandemic¹² in Canada (2020 and 2021) and 0 otherwise. The term $\sum_{k=0}^K \gamma_k^a X_{i,t}^k$ indicates the aggregates of K observable control variables for the nascent entrepreneur, such as age category, gender, employment status (employee, retiree or student, self-employed worker or unemployed), education (high school or lower, postsecondary or university master's or doctorate) and income category.

$Z_{i,t}^k$ is an aggregate of variables that record the entrepreneur's perception, such skills and experience to become an entrepreneur, the perception of the fear of failure and expected opportunities for creating a business in the next six months. θ_p is a binary variable vector for each province p . $\varepsilon_{i.p.t}$ represents the error term following a normal distribution with $\varepsilon_{i.p.t} \rightarrow N(0,1)$.

Since the latent variable is not directly observed in the data, an alternative variable is used, denoted $ent_dem_{i.p.t}^s$, which is equal to 1 if the person starts a business and 0 otherwise. This binary variable indicates the category into which $ent_dem_{i.p.t}^{*s}$ falls:

$$ent_dem_{i.p.t}^s = \begin{cases} 1 & \text{if } ent_dem_{i.p.t}^{*s} > 0 \\ 0 & \text{if } ent_dem_{i.p.t}^{*s} \leq 0 \end{cases}, \quad (2)$$

β_1^s , the coefficient of interest, allows for the calculation of the average marginal effect of COVID-19 on the likelihood of becoming a nascent entrepreneur or on the likelihood of starting a high-growth company. In general, the average marginal effect quantifies the change in the continuous independent variable (or a one-unit change for the binary variable) on the probability of starting a business.

According to the definition of Albert *et al.* (2023), high-growth companies are considered opening companies if they expect to have more employees in the next five years than the average for established businesses (companies that have existed for more than 45 months) in the same sector. This classification takes into account the intensity of work required in each sector. As a measure of robustness, an alternative classification is also used, based on GEM's definition of a high-growth company.

¹² More specifically, the COVID-19 variable captures the health measure stringency policies in the fight against the pandemic. According to the figure, stringency policies were implemented in 2020 and 2021.

According to the GEM definition, a company is considered high growth if it plans to increase its workforce by more than 50%, with a minimum of 10 employees, in the five years prior to the startup of the business.

To account for possible differences between provinces and over time that could arise if authorities implemented stricter measures at the provincial level, the following model is estimated:

$$ent_dem_{i,p,t}^{*s} = \beta_0^s + \beta_1^s Stringency_index_{p,t} + \sum_{k=1}^K \gamma_k^s X_{i,t}^k + \sum_{j=1}^J \delta_j^s Z_{i,t}^k + \theta_p + \varepsilon_{i,p,t}, \quad (3)$$

where $Stringency_index_{p,t}$ is an index estimated by the Bank of Canada that measures the average annual stringency of COVID-19-related health measures at the provincial p level. This index accounts for potential differences in the stringency of COVID-19 related health measures, which is not the case for the model that uses a binary variable as defined in specification (1).

To assess how the effect of COVID-19 changes over time, a more general specification than (1) is employed:

$$ent_dem_{i,p,t}^{*s} = \beta_0^s + \sum_{j=t_0}^T \beta_j^s D_{p,t} + \sum_{k=1}^K \gamma_k^s X_{i,t}^k + \sum_{j=1}^J \delta_j^s Z_{i,t}^k + \theta_p + \varepsilon_{i,p,t}, \quad (4)$$

in which $D_{p,t}$ is a sequence of binary variables equal to 1 for each year in sample $t = 1, \dots, T$ and 0 otherwise. The coefficient corresponding to the year 2019 is excluded to identify the model.



5. Results

5.1. Impact of COVID-19 on the decision to start a business

Table 2 presents the results of the average marginal effects. Columns (1) and (2) present the results for the binary dependent variable, which is equal to 1 for nascent entrepreneurs and 0 otherwise. Columns (3) and (4) focus on the binary dependent variable, which is equal to 1 if the nascent entrepreneur starts a high-growth company and 0 for a low-growth company.

Column (1) shows that after controlling for observable variables, COVID-19 caused a 1.4 percentage point decrease in the likelihood of becoming a nascent entrepreneur. The average probability of starting a business was 10.6% between 2015 and 2019,¹³ and the effect of the pandemic resulted in a 13.2% decline in the probability of starting a business.

Column (1) also highlights the marginal effects of the other control variables. Women exhibited a 2.5 percentage point lower likelihood of starting a business compared with men. With respect to education level, Canadians with a postsecondary diploma or a master's degree or doctorate had an additional probability of starting a business of 2.2 and 2.9 percentage points, respectively, compared with those who had a high school diploma or lower. Individuals in the middle- and high-income categories had a probability of starting a business that was 1.2 and 2.7 percentage points lower, respectively, compared with low-income individuals. With respect to employment status, unemployment did not have a significant impact on the likelihood of starting a business compared with employees. Retirees and students were the least involved in business creation, with a probability 5.3 percentage points lower than that of employees. In contrast, self-employed workers had a 16.5 percentage point higher likelihood of becoming nascent entrepreneurs compared with employees.

¹³ The average (unconditional) probability of becoming a nascent entrepreneur is calculated directly by using the average of the proportion of nascent entrepreneurs between 2015 and 2019 with the GEM database (see Table A1 for more information).

Table 2: Average marginal effects of COVID-19 on the likelihood of starting a business

Dependent variable	(1)	(2)	(3)	(4)
	Starting up a business	Starting up a business	Starting up a high-growth company	Starting up a high-growth company
COVID-19	-0.014*** (0.004)	-0.011*** (0.003)	-0.040** (0.017)	-0.035** (0.017)
Gender (reference: male)				
Female	-0.025*** (0.008)	-0.011 (0.008)	-0.082*** (0.028)	-0.077*** (0.025)
Education category (reference: high school diploma and lower)				
Postsecondary diploma	0.022** (0.006)	0.019*** (0.006)	-0.016 (0.023)	-0.012 (0.022)
University degree (master's or doctorate)	0.029** (0.010)	0.017* (0.009)	0.002 (0.039)	0.007 (0.039)
Employment status (reference: work)				
Retired, student	-0.053*** (0.006)	-0.048*** (0.006)	-0.099** (0.044)	-0.102** (0.044)
Does not work	-0.011 (0.008)	-0.004 (0.007)	-0.026 (0.048)	-0.025 (0.047)
Self-employed worker	0.165*** (0.014)	0.114*** (0.012)	0.013 (0.021)	0.009 (0.022)
Age category (reference: 18 to 24 years old)				
Ages 25 to 34	0.015 (0.011)	0.004 (0.010)	-0.011 (0.029)	-0.015 (0.029)
Ages 35 to 44	-0.017*** (0.010)	-0.025** (0.011)	0.011 (0.033)	0.002 (0.035)
Ages 45 to 54	-0.041*** (0.011)	-0.045*** (0.008)	0.014 (0.038)	0.006 (0.036)
Age 55 and over	-0.061*** (0.006)	-0.068*** (0.006)	0.003 (0.050)	-0.007 (0.049)
Income category (reference: top first tercile)				
Second tercile	-0.012* (0.006)	-0.015** (0.006)	0.000 (0.028)	-0.002 (0.027)
Third tercile	-0.027*** (0.007)	-0.036*** (0.007)	0.066** (0.031)	0.061* (0.031)
Perception of starting a business				
Ability and experience	-	0.089*** (0.006)	-	0.067* (0.037)

Fear of failure	-	-0.016* (0.009)	-	-0.040** (0.018)
Expected opportunities in the next six months	-	0.043*** (0.005)	-	-0.009 (0.026)
Number of observations	16,279	16,279	1,619	1,619

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model. The dependent variable is equal to 1 if the individual starts a business and 0 otherwise. Columns (1) and (2) present the results on the probability of starting a business. Columns (3) and (4) present the results on the probabilities that an adult will start up a high-growth company knowing that they have started a company. COVID-19 is a binary variable equal to 1 for the years 2020 and 2021 and 0 otherwise. The control variables include age categories, gender, income categories, employment status, and binary variables for each province. Columns (2) and (4) include perception variables such as experience with and knowledge of starting a business, the perception of the fear of failure, and the expected opportunities in the next six months. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Age is a determining factor in assessing changes in the proportion of startup entrepreneurs in Canada. The results indicate that there is no statistically significant difference between Canadians aged 18 to 24 and those aged 25 to 34 in terms of the likelihood of starting a business. However, compared with Canadians aged 18 to 24, those aged 35 to 44 and 45 to 54 were, respectively, 1.7 and 4.1 percentage points less likely to start a business. Canadians over 55 had the lowest likelihood, with a 6.1 percentage point lower probability of starting a business compared with those aged 18 to 24.

Furthermore, the results remain generally robust when the model includes variables measuring the perception of starting a business. As expected, Canadians who feared failure had a 1.6 percentage point lower likelihood of starting a business. This result is consistent with research by Kikul *et al.* (2011), which shows that individuals with a low tolerance for risk view entrepreneurship as risky rather than as an opportunity, which can hinder entrepreneurial creation. The ability and experience to start a business significantly increased the probability of creating a business (8.9 percentage points).

Column (3) presents the results of the pandemic’s effect on the likelihood of starting a high-growth company.

As expected, the pandemic led to a four percentage point decrease in the likelihood of starting up a high-growth company. This decrease is estimated at 23.7% compared with the average probability of starting a high-growth company before the pandemic, which was 16.9%.¹⁴ Regarding the other control variables, the estimated model indicates that age and education level had no significant effect on the likelihood of starting up a high-growth company.

Moreover, Canadians with higher incomes were involved in the creation of high-growth companies with a probability 6.6 percentage points higher than those with middle incomes. This could be explained by the fact that high-growth companies generally require more substantial investments than low-growth ones.

Regarding the other control variables, there was an 8.2 percentage point difference between men and women in the creation of high-growth companies. Retirees and students had a 9.9 percentage point higher likelihood of starting a high-growth company compared with salaried workers. The results are robust to the inclusion of perception variables in the model.

5.2. Impact of the stringency of health measures related to COVID-19 on the decision to start a business

Previous results indicated that COVID-19 led to a 13.2% decrease in the likelihood of starting a business. Table 3 presents an extension of the previous model by assuming that part of the impact of COVID is related to the implementation of health measures to combat the spread of the disease, taking into account the heterogeneity of these policies among Canadian provinces. Table 3 shows the estimates from specification (3) in which the health measure stringency index is the variable of interest for measuring the effects of COVID-19. Like the results in Table 2, the marginal effect of the stringency index is negative and significant in all specifications.

¹⁴ See Table A1 for information on the average of unconditional probabilities or the proportion of nascent entrepreneurs from the GEM survey.

Table 3: Average marginal effects of health measure stringency index on the likelihood of starting a business

Dependent variable	(1)	(2)	(3)	(4)
	Starting up a business	Starting up a business	Starting up a high-growth company	Starting up a high-growth company
Stringency index	-0.0003*** (0.0001)	-0.0002*** (0.0001)	-0.0008** (0.0004)	-0.0007** (0.0004)
Gender (reference: male)				
Female	-0.0252*** (0.0083)	-0.0111 (0.0080)	-0.0823*** (0.0283)	-0.0768*** (0.0254)
Education category (reference: high school diploma and lower)				
Postsecondary diploma	0.0218*** (0.0063)	0.0192*** (0.0063)	-0.0156 (0.0226)	-0.0120 (0.0222)
University degree (master's or doctorate)	0.0288*** (0.0097)	0.0170* (0.0088)	0.0023 (0.0394)	0.0071 (0.0388)
Employment status (reference: work)				
Retired, student	-0.0528*** (0.0056)	-0.0482*** (0.0058)	-0.0988** (0.0440)	-0.1022** (0.0442)
Does not work	-0.0114 (0.0080)	-0.0038 (0.0074)	-0.0266 (0.0482)	-0.0258 (0.0469)
Self-employed worker	0.1646*** (0.0136)	0.1140*** (0.0119)	0.0131 (0.0210)	0.0086 (0.0216)
Age category (reference: 18 to 24 years old)				
Ages 25 to 34	0.0147 (0.0110)	0.0038 (0.0101)	-0.0104 (0.0291)	-0.0154 (0.0286)
Ages 35 to 44	-0.0167* (0.0098)	-0.0248** (0.0107)	0.0114 (0.0334)	0.0023 (0.0353)
Ages 45 to 54	-0.0405*** (0.0106)	-0.0449*** (0.0081)	0.0142 (0.0375)	0.0061 (0.0355)
Age 55 and over	-0.0608*** (0.0065)	-0.0682*** (0.0060)	0.0038 (0.0495)	-0.0065 (0.0486)
Income category (reference: top first tercile)				
Second tercile	-0.0122* (0.0065)	-0.0150** (0.0062)	-0.0002 (0.0276)	-0.0022 (0.0267)
Third tercile	-0.0268*** (0.0071)	-0.0356*** (0.0069)	0.0656** (0.0313)	0.0609* (0.0312)
Perception of starting a business				
Ability and experience	-	0.0890*** (0.0056)	-	0.0675* (0.0366)

Fear of failure	-	-0.0162 [*] (0.0092)	-	-0.0400 ^{**} (0.0175)
Expected opportunities in the next six months	-	0.0431 ^{***} (0.0051)	-	-0.0088 (0.0265)
Number of observations	16,279	16,279	1,619	1,619

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model. The dependent variable is equal to 1 if the individual starts a business and 0 otherwise. Columns (1) and (2) present the results on the probability of starting any firm. Columns (3) and (4) present the results on the probabilities that an adult will start up a high-growth company knowing that they have started a company. The stringency index measures the stringency of health measures related to COVID-19 as a percentage. The control variables include age categories, gender, income categories, employment status, and binary variables for each province. Columns (2) and (4) include perception variables such as experience with and knowledge of starting a business, the perception of the fear of failure, and the expected opportunities in the next six months. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.
Sources: Global Entrepreneurship Monitor, Adult Population Survey, 2015–2021; and author’s calculations.

Column (1) shows that a 10 percentage point increase in the stringency index resulted in a significant decrease of 0.3 percentage points in the probability of starting a business. The average index was 49.20 during the pandemic in Canada and the decrease in the likelihood of starting a business compared with the pre-pandemic period was 1.5 percentage points (49.20×0.03 percentage points).

This result is consistent with that of Table 2. The results remain unchanged if the perception variables are added to the model, as shown in column (2).

Column (3) indicates that a 10 percentage point increase in the health measure stringency index led to a decrease in the likelihood of starting a high-growth company by 0.9 percentage points.

Similarly, considering the average value of the stringency index during COVID-19, which was 49.20, the results imply a significant decrease, of 4 percentage points (49.20×0.08 percentage points), in the likelihood of starting a high-growth company. The marginal effects have magnitudes very close to those presented in Table 2.

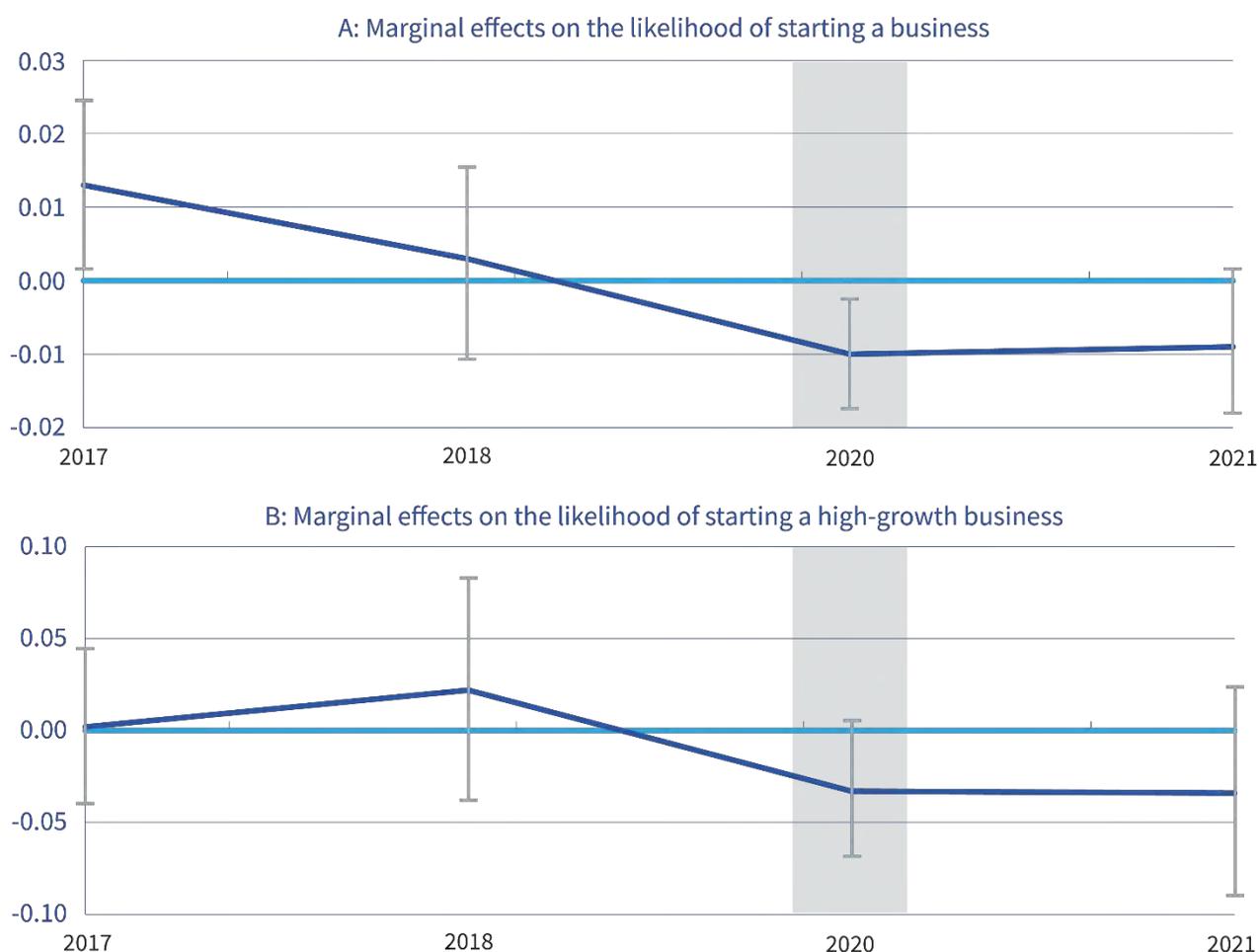
In summary, according to the empirical methods used in this report, the impact of COVID-19 on startup entrepreneurship seems largely dependent on the intensity of the containment measures implemented to restrict the spread of the virus.

It would be worthwhile to examine COVID-19’s effects during the tightening and easing phases of containment measures.

5.3. Dynamics of COVID-19's effect on the decision to start a business

The influence of COVID-19 on the decision to start a business may have varied across the initial waves of the pandemic in 2020 or during periods when containment measures were eased. To examine this trend, specification (4) is calculated using 2019 as the reference year. Figure 21 shows the progression of COVID-19's effect on the decision to start a business.

Figure 21: Dynamics of COVID-19's effect



Notes: The figure shows the progression of COVID-19's average marginal effect compared with the year 2019, which is one year before the impact of the pandemic. Part A presents the dynamics of COVID-19's impact on the likelihood of starting a business. Part B represents the marginal effects of COVID-19 on the likelihood of starting a high-growth business (HGB). The numerical values corresponding to this figure are presented in Table A2. Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

Part A indicates that COVID-19 led to a 1 percentage point decrease in the likelihood of starting a business compared with 2019. Given that the probability of starting a business was 11% in 2019,¹⁵ this represents a decrease of 9.1% relative to that year.

In 2021, the effect of COVID-19 persisted, with a slight decrease in the probability of starting a business of 0.9 percentage points, corresponding to an 8.2% drop compared with 2019.

The effect of COVID-19 on the likelihood of becoming a high-growth entrepreneur was similar. Indeed, as shown in part B of figure 21, the pandemic led to a decrease of 3.3 percentage points in the likelihood of starting a high-growth business in 2020.

With high-growth businesses representing 14.2% in 2019, the decline represents a drop of 23.2%. This trend appears to have continued in 2021 with a decrease of 3.4 percentage points compared with 2019. However, this decrease is not statistically significant.

5.4. Heterogeneity in entrepreneurial choices during COVID-19

5.4.1. Heterogeneous effects of COVID-19 by sociodemographic characteristics

The overall effect of COVID-19 on the likelihood of individuals starting a business may depend on their observable characteristics. To assess heterogeneity in effects of the pandemic based on a given individual characteristic, such as age category, gender, and income category, the empirical specification (1) is modified by including an interaction variable between COVID-19 and that control variable (or set of control variables). The specification is defined as follows:

$$ent_dem_{i.p.t}^s = \beta_0^s + \beta_\omega^s COVID_19_t + \sum_{k=1}^K \gamma_k^s X_{i,t}^k + \lambda_\omega^s X_{i,t}^\omega * COVID_19_t + \sum_{j=1}^J \delta_j^s Z_{i,t}^k + \theta_p + \varepsilon_{i.p.t}. \quad (5)$$

¹⁵ The unconditional probability of starting a startup business in 2019 is calculated from the proportion of nascent entrepreneurs in the GEM survey.

Based on specification (5), the total effect of COVID-19, according to the characteristics ω of the individual i , is as follows:

$$\psi_{i,t,\omega}^S = \beta_{\omega}^S + \lambda_{\omega}^S * X_{i,t,\omega}^{\omega}, \quad (6)$$

$$\omega \in k$$

with ω representing age categories, income categories, and gender. The model is estimated separately for each ω .

β_{ω}^S is the effect of COVID-19 for the reference category of the variable ω .

$\lambda_{\omega}^S * X_{i,t,\omega}^{\omega}$ is the effect of COVID-19 according to the different categories of the variable ω compared to the reference level.

Figures 22 and 23 show the average marginal effects $\psi_{i,t,\omega}^S$ of COVID-19 on the likelihood of starting a business and on the likelihood of starting a high-growth business based on gender, income categories, and age categories.¹⁶

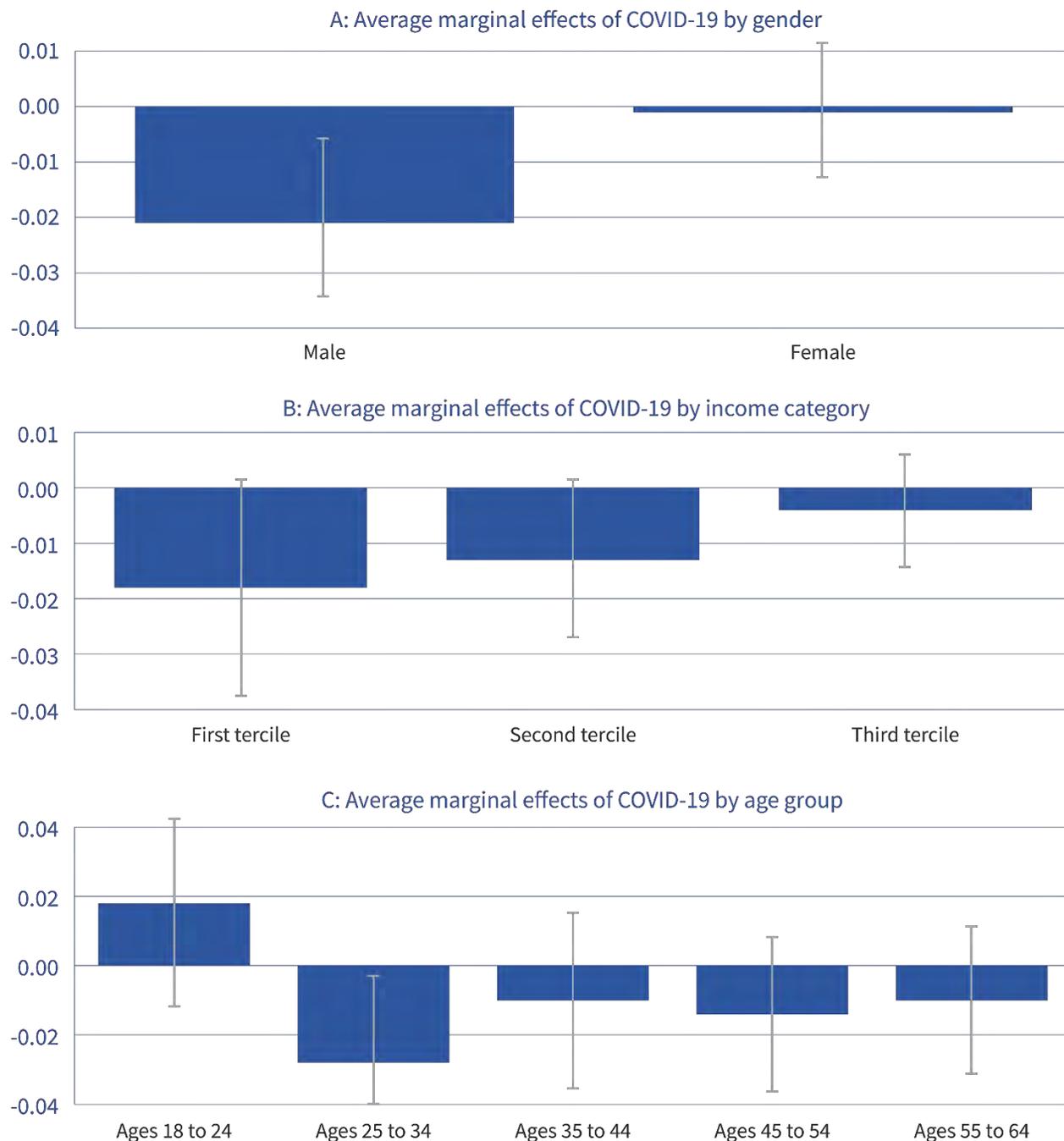
Figure 22 shows that COVID-19 led to a statistically significant decrease of 2.1 percentage points in the likelihood of starting a business among men. Conversely, the results show that the pandemic had no impact on business creation among women. Figure 22 highlights a heterogeneity in COVID-19's effects based on individuals' income levels. Canadians in the lowest and middle-income brackets saw a significant reduction in their likelihood of starting a business (1.8 percentage points and 1.3 percentage points). However, the data do not suggest any impact for individuals in the higher income category.

With respect to age effects, Figure 22 shows a significant drop of 2.8 percentage points for the 25- to 34-year-old age group, the age category with the highest share of nascent entrepreneurs before the pandemic. Individuals in other age categories, except for the 18 to 24 age group, also experienced a decrease in their likelihood of starting a business during COVID-19, although these effects are not statistically significant.

As for the likelihood of starting a high-growth business, Figure 23 suggests a significant decrease of 4.5 percentage points for men during COVID-19. However, COVID-19 had no effect on women. Only individuals in the higher income category were affected by COVID-19, with respect to the decision to start a high-growth business, with a decrease of 8.1 percentage points.

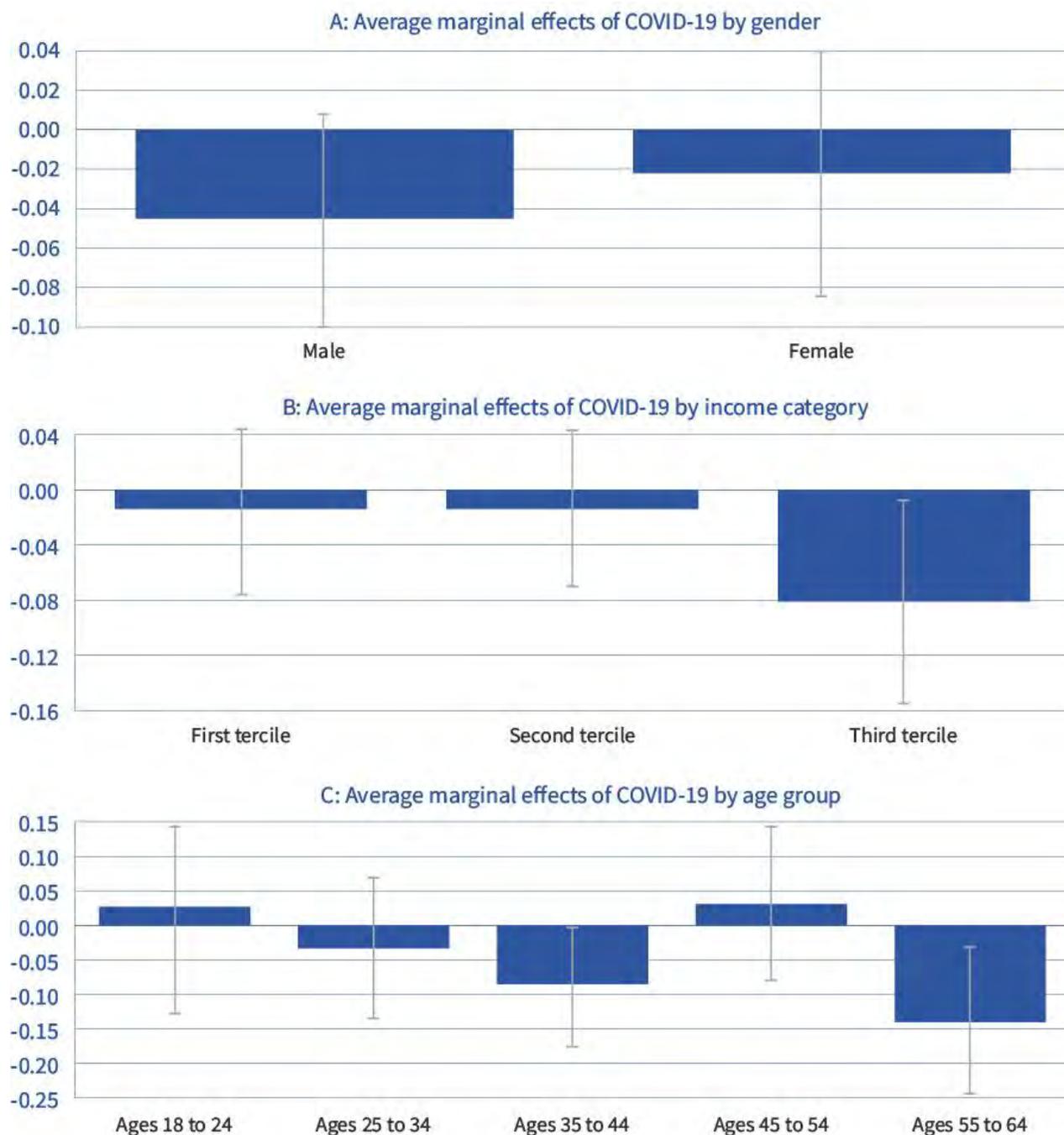
¹⁶ See Table A3 for information on COVID-19's average marginal effects and their significance used in Figures 22 and 23.

Figure 22: Marginal effects of COVID-19 on the likelihood of starting a business by sociodemographic characteristics



Notes: Figure 22 shows the average marginal effects of COVID-19 on the likelihood of starting a business. These marginal effects come from the probit model estimation of specification (5). Table A3 presents the numerical values corresponding to this figure, as well as other information on these estimated marginal effects. Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Figure 23: Marginal effects of COVID-19 on the likelihood of starting a high-growth business by sociodemographic characteristics



Notes: Figure 23 shows the average marginal effects of COVID-19 on the likelihood of starting a high-growth business. These marginal effects come from the probit model estimation of specification (5). Table A3 presents the numerical values corresponding to this figure, as well as other information on these estimated marginal effects. Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

The pandemic had a differentiated impact by age group regarding the decision to start high-growth businesses. In particular, it reduced the likelihood of starting a high-growth business by 8.5 percentage points for those aged 35 to 44 and by 14 percentage points¹⁷ for those aged 55 and over.

5.4.2. Heterogeneity in entrepreneurial choice during COVID-19 across sectors

COVID-19 did not have the same impact on all industry sectors. Restaurants, transportation, and tourism were particularly affected by the containment measures, leading to the prolonged closure of non-essential businesses. As a result, a large proportion of business activities were reduced or suspended.

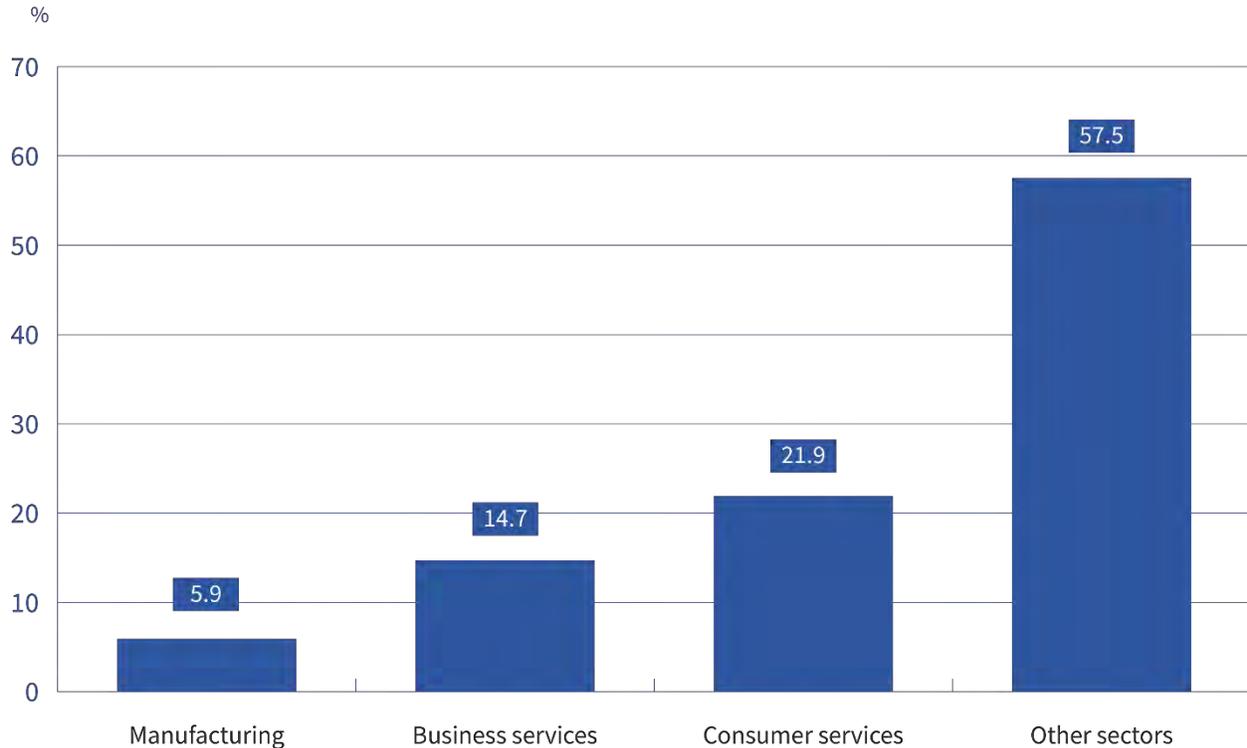
The GEM survey asks nascent entrepreneurs to describe their business activities, allowing businesses to be classified into one of the following four sectors:

1. **Manufacturing** (including manufacturing, transportation, and storage);
2. **Business services** (including information technology and professional and administrative services);
3. **Consumer services** (including retail, hotels and restaurants, and personal services);
4. **Other sectors** (including finance, real estate, rental and leasing services, the primary sector [agriculture and mining], as well as the health, education, government services, wholesale trade, and unclassified businesses).

To assess the impact of COVID-19 on the likelihood of starting a business in each sector, a series of dependent variables was created, equal to 1 if the person starts a business in a sector and 0 otherwise. Figure 24 illustrates the proportion of nascent entrepreneurs in each sector. The results show that nascent entrepreneurs are more likely to carry out their activities in other sectors (57.5%), followed by the consumer services sector (21.9%), and the business services sector (14.7%). The manufacturing sector has the lowest share of nascent entrepreneurs (5.9%).

¹⁷ It is important to be cautious in the interpretation of even statistically significant marginal effects since the confidence intervals may contain null/near-zero values.

Figure 24: Proportion of nascent entrepreneurs in each sector



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Table 4 presents the estimates of the average marginal effects of the control variables on the probability of starting a business in the following sectors: manufacturing, business services, consumer services, and other sectors.¹⁸

Column (1) indicates that the pandemic did not have a statistically significant effect on business creation in the manufacturing sector, which includes transportation and storage. However, the results in column (2) indicate a decrease of 0.3 percentage points in the likelihood of starting a business in the business services sector, which includes information technology, and professional and administrative services. Given that the proportion of nascent entrepreneurs in this sector before the pandemic was 1.6%, the impact of COVID-19 represents a significant reduction, of 18.75%, in the likelihood of starting a business in the business services sector.

¹⁸ The dependent variable in this estimation measures the probability of an individual starting a business in a specific sector.

Table 4: Effects of COVID-19 on the likelihood of starting a business

Dependent variable	(1) Starting a business in the manufacturing sector	(2) Starting a business in the business services sector	(3) Starting a business in the consumer services sector	(4) Starting a business in other sectors
COVID-19	0.004 (0.002)	-0.003* (0.002)	-0.005* (0.003)	-0.006* (0.003)
Gender (reference: male)				
Female	-0.002 (0.001)	-0.005** (0.002)	0.004 (0.003)	-0.009 (0.006)
Education category (reference: high school diploma and lower)				
Postsecondary diploma	-0.001 (0.002)	0.012*** (0.003)	0.006** (0.002)	0.003 (0.006)
University degree (master's or doctorate)	-0.001 (0.002)	0.007** (0.003)	0.003 (0.005)	0.007 (0.009)
Employment status (reference: work)				
Retired. student	-0.003** (0.001)	-0.008*** (0.003)	-0.008** (0.004)	-0.030*** (0.005)
Does not work	-0.004** (0.001)	0.009 (0.008)	-0.009* (0.005)	0.002 (0.007)
Self-employed worker	0.008*** (0.002)	0.023*** (0.004)	0.024*** (0.006)	0.057*** (0.009)
Age category (reference: 18 to 24 years old)				
Ages 25 to 34	0.000 (0.003)	0.003 (0.003)	-0.002 (0.006)	0.004 (0.009)
Ages 35 to 44	0.001 (0.003)	-0.002 (0.004)	-0.004 (0.009)	-0.019*** (0.007)
Ages 45 to 54	-0.000 (0.003)	-0.003 (0.003)	-0.013*** (0.003)	-0.028*** (0.006)
Age 55 and over	0.003 (0.003)	-0.004 (0.003)	-0.016*** (0.004)	-0.051*** (0.006)
Income categories (reference: first tercile)				
Second tercile	0.000 (0.002)	-0.002 (0.003)	-0.011** (0.005)	-0.002 (0.005)
Third tercile	-0.001 (0.002)	-0.005 (0.003)	-0.014*** (0.005)	-0.016*** (0.004)
Ability and experience				
Ability and experience	0.005** (0.003)	0.019*** (0.002)	0.016*** (0.003)	0.053*** (0.005)
Fear of failure	-0.002 (0.001)	-0.003 (0.002)	-0.003 (0.005)	-0.008** (0.004)
Expected opportunities in the next six months	0.001 (0.001)	0.001 (0.003)	0.010*** (0.003)	0.031*** (0.006)
Number of observations	16,279	16,279	16,279	16,279

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model. The dependent variable is equal to 1 if the individual starts a business and 0 otherwise. Columns (1)

to (4) present the results on the likelihood of starting up in the manufacturing sector (manufacturing, transportation and storage sector), the business services sector (information technology sector, professional and administrative services sector), the consumer services sector (retail trade sector, hotels and restaurants sector, personal services sector) and other sectors (financial sector, real estate, rental and leasing services, agriculture and mining sector, health and education sector). The control variables include age categories, gender, income categories, employment status, and binary variables for each province, perception variables such as experience with and knowledge of starting a business, perception of the fear of failure, and expected opportunities in the next six months. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey, 2015–2021*; and author's calculations.

Columns (3) and (4) also show decreases of 0.5 and 0.6 percentage points, respectively, in the probability of creating a business in the consumer services sector and in other sectors. Before the pandemic, the average probabilities of starting a business in the consumer services sectors and in other sectors were 2.4% and 6.1%, respectively.¹⁹ The effects of COVID-19 therefore led to significant decreases (20.8% and 9.83%) in the likelihood of starting a business in these sectors.

In conclusion, the pandemic generally impacted business creation in most sectors of the Canadian economy. The most significant declines observed were in the retail trade, hotels and restaurants, and personal services sectors. These sectors were particularly affected by social distancing policies during the pandemic.

¹⁹ For more information on average probabilities, see table A1. The average unconditional probabilities are the proportions of nascent entrepreneurs starting in a given sector in the 2015–2019 period to quantify the economic impact of COVID-19 compared with the trend.

5.5. Profiles of nascent entrepreneurs during COVID-19: motivated by necessity, internationally-oriented, innovative, and growth-oriented

The previous sections have shown the pandemic's influence on new businesses according to the entrepreneur's sociodemographic characteristics. However, COVID-19's impact on the decision to start an early-stage business may vary depending on the entrepreneur's motivations.

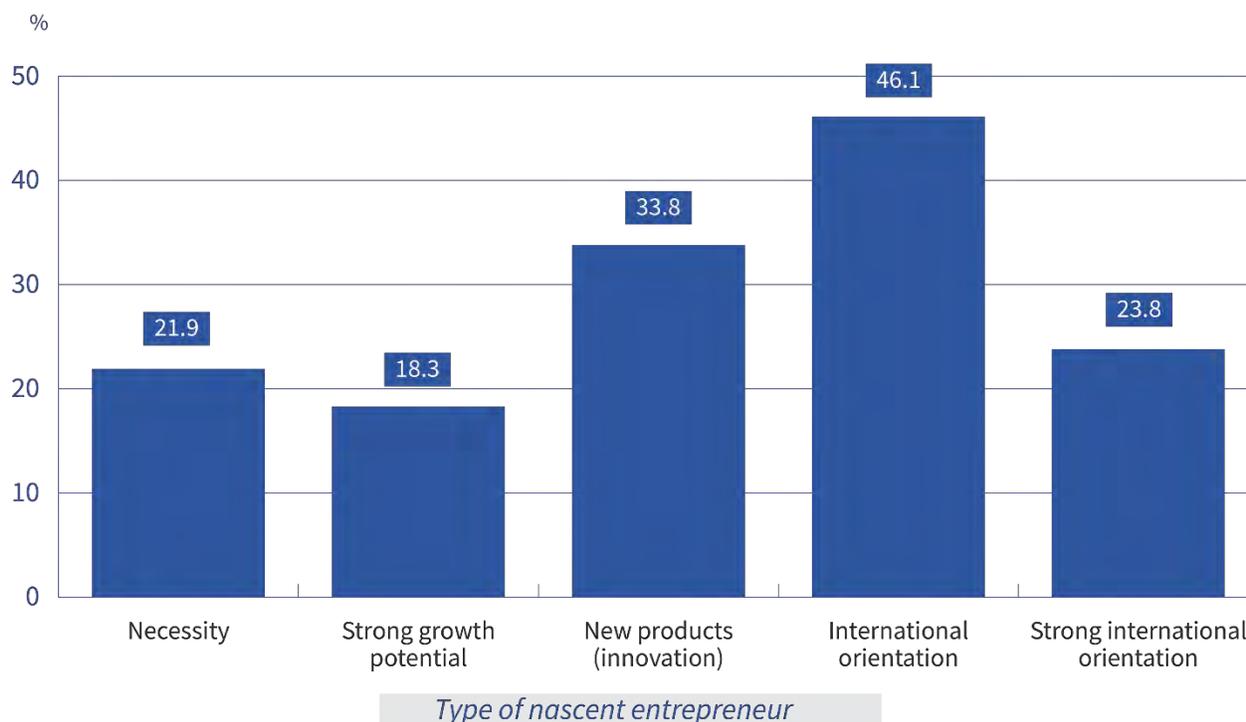
The GEM survey allows for a deeper analysis of entrepreneur profiles. This section first assesses the impact of the pandemic on business creation based on motivations. For example, a person who starts a business out of necessity, due to a lack of employment, is less likely to hire employees in the future. To distinguish necessity-based nascent entrepreneurs, GEM surveyed nascent Canadian entrepreneurs on the reasons they started a business. A necessity-based nascent entrepreneur is defined as one who answers affirmatively to the following question: "***to earn a living because jobs are scarce.***" A dependent variable based on this question is created, taking the value of 1 if the nascent entrepreneur is motivated by necessity.

To test the robustness of the effect of COVID-19 on the likelihood of starting high-growth businesses, an alternative measure was considered, based on GEM's definition of a high-growth businesses. A binary variable was created, taking the variable 1 if the nascent entrepreneur shows strong growth potential.

The GEM survey also distinguishes other aspects of entrepreneurs, such as the entrepreneur's ability to introduce a new product into the market or to export a portion of their production (international orientation). To identify innovative companies, a dependent variable is created, taking the value of 1 if nascent entrepreneurs have offered new products or services to their clients and 0 otherwise. The entrepreneur's international orientation is measured by two binary variables: the first equals 1 if more than 1% of the clients are located outside of Canada, while the second equals 1 if more than 25% of the clients are located abroad, which captures entrepreneurs who are strongly internationally oriented.

Figure 25 shows the proportions of entrepreneurs according to their profile. About 21.9% of nascent entrepreneurs were motivated by necessity; nearly 18.3% had strong growth potential; and approximately 33.8% introduced new products when starting their businesses.

Figure 25: Proportions of nascent entrepreneurs according to their motivation, international orientation, and potential for growth and innovation



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

With respect to the international orientation of nascent entrepreneurs, nearly 46.1% had more than 1% of their clientele outside Canada. Furthermore, about 23.8% had a strong international orientation, with more than 25% of their clientele located abroad.

Table 5 shows the impact of COVID-19 on the likelihood of starting a business based on entrepreneurial profile. Column (1) indicates that the probability of a nascent entrepreneur being motivated by necessity increased by 7.7 percentage points during the pandemic. This effect corresponds to a 39.3% increase in the likelihood that a nascent entrepreneur is motivated by necessity between 2020 and 2021, while the average likelihood that an entrepreneur is motivated by necessity is 19.6%²⁰ on average between 2015 and 2019.

²⁰ The average probability that nascent entrepreneurs are motivated by necessity is obtained by using the average of the proportion of necessity-based nascent entrepreneurs between 2015 and 2019 (see Table A3 for more information).

Table 5: Effects of COVID-19 according to entrepreneur characteristics

Dependent variable	(1) Starting a business out of necessity	(2) Starting a high- growth company	(3) Starting an innovative business	(4) Starting an internationally oriented business	(5) Starting a business with a strong international orientation
COVID-19	0.077** (0.0318)	-0.031* (0.017)	0.185*** (0.060)	-0.110* (0.060)	-0.014 (0.022)
Gender (reference: male)					
Female	-0.017 (0.027)	-0.069* (0.036)	-0.055* (0.033)	-0.141*** (0.024)	-0.086*** (0.024)
Education category (reference: high school diploma and lower)					
Postsecondary diploma	-0.074* (0.043)	-0.021 (0.028)	-0.029 (0.049)	0.036 (0.053)	-0.009 (0.051)
University degree (master's or doctorate)	-0.106** (0.044)	-0.012 (0.038)	0.093** (0.042)	0.100*** (0.036)	0.095** (0.048)
Employment status (reference: works)					
Retired, student	-0.047 (0.070)	-0.196*** (0.013)	0.097 (0.103)	-0.036 (0.054)	-0.096** (0.044)
Does not work	0.215** (0.096)	-0.056 (0.047)	0.031 (0.127)	-0.106 (0.065)	-0.077 (0.047)
Self-employed worker	0.022 (0.023)	-0.022 (0.017)	0.022 (0.018)	-0.017 (0.027)	0.030 (0.022)
Age category (reference: 18 to 24 years old)					
Ages 25 to 34	0.048 (0.042)	-0.006 (0.046)	-0.062 (0.047)	-0.001 (0.046)	0.047 (0.047)
Ages 35 to 44	0.029 (0.058)	-0.014 (0.054)	-0.095** (0.045)	-0.033 (0.045)	0.013 (0.041)
Ages 45 to 54	-0.003 (0.033)	-0.003 (0.045)	-0.108** (0.052)	0.037 (0.049)	-0.016 (0.043)
Age 55 and over	0.044 (0.039)	-0.018 (0.044)	-0.085 (0.060)	0.001 (0.079)	-0.015 (0.047)
Income categories (reference: first tercile)					
Second tercile	-0.119*** (0.038)	0.031 (0.020)	0.022 (0.023)	-0.015 (0.026)	-0.020 (0.028)
Third tercile	-0.150*** (0.041)	0.100*** (0.023)	-0.025 (0.028)	0.014 (0.035)	-0.034 (0.043)
Ability and experience					
Ability and experience	0.036* (0.021)	0.081** (0.035)	0.010 (0.048)	0.010 (0.038)	-0.030 (0.027)
Fear of failure	0.048** (0.023)	-0.024 (0.022)	0.019 (0.030)	-0.057** (0.023)	-0.011 (0.027)
Expected opportunities in the next six months	-0.056 (0.034)	-0.013 (0.023)	0.100** (0.041)	0.044 (0.030)	0.043** (0.017)
Number of observations	1,619	1,619	1,619	1,619	1,619

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model. The dependent variable is equal to 1 if the individual starts a business and 0 otherwise. Columns (1), (2), (3), and (4) present the results on the probability of starting a business out of necessity, a high-growth business, an innovative business, a business with international orientation, and a business with strong international orientation, respectively. COVID-19 is a binary variable equal to 1 for the years 2020 and 2021 and 0 otherwise. The control variables include age categories, gender, income categories, employment status, and binary variables for each province. Columns (2) and (4) include perception variables such as experience with and knowledge of starting a business, the perception of the fear of failure, and the expected opportunities in the next six months. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey, 2015–2021*; and author's calculations.

With respect to the other control variables, Canadians who were not working had a 21.5 percentage point higher probability of starting a necessity-driven business compared with wage earners. Canadians in the middle and upper income categories were 11.9 and 15 percentage points less likely, respectively, to start a necessity-driven business than Canadians in the lowest income classes.

Similarly, individuals with a university degree (master's or doctorate) or a postsecondary diploma had a 7.4 and 10.6 percentage point lower probability, respectively, of starting a business out of necessity compared with those with a secondary education or lower.

Column (2) shows the average marginal effects of the variables on the probability of starting a high-growth business. COVID-19 caused a decrease of 3.1 percentage points, which is similar to previous results.

In column (3), the dependent variable is 1 if the nascent entrepreneur introduced new goods and services.

The pandemic stimulated innovation, with an 18.5 percentage point increase in the likelihood of starting an innovative business, representing a 66.7% increase (the average likelihood before the pandemic was 30%). In columns (4) and (5), with respect to the international orientation of nascent entrepreneurs, COVID-19 led to an 11 percentage point decrease in the likelihood of starting a business with more than 1% of customers coming from abroad.

The proportion of these businesses was 48.5% before the public health crisis, so this decrease amounted to 22.7%. Column (5) provides information on the pandemic's effect on the likelihood that a startup has more than 25% of its customers coming from abroad. The results do not show a significant effect on early-stage companies with a strong international orientation.

In summary, COVID-19 changed the profile of new entrepreneurs in Canada.

Indeed, businesses were probably opened during the pandemic out of necessity, while at the same time, the number of high-growth companies and businesses with low international orientation decreased. In contrast, there was a significant increase in innovative companies during the pandemic.

5.6. New opportunities during COVID-19: digitalization

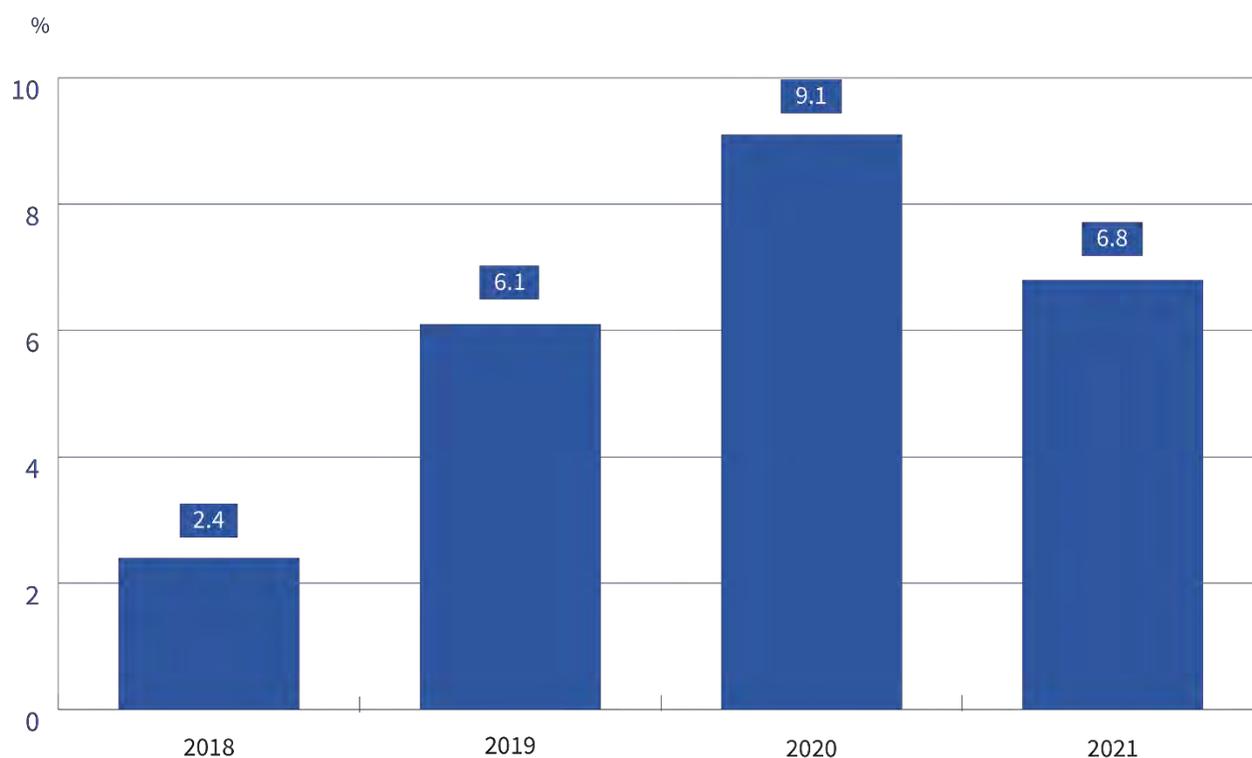
Previous analyses revealed that some nascent entrepreneurs fared better during the pandemic by seizing new opportunities. Examining the role of digitalization during the COVID-19 pandemic is particularly relevant. However, the GEM survey does not cover the uptake of digitalization by startup companies. To analyze digitalization, the description provided by entrepreneurs regarding the type of activity that is planned to be carried out was used. Based on these descriptions, keywords in a set of terms related to digitalization are searched to classify an early-stage company as “digital” if the description of that company’s activities contains one of these keywords.²¹

Figure 26 shows the proportion of nascent entrepreneurs engaged in digital activities.²² The digitalization trend shows a significant jump in the proportion of digital businesses opened during the pandemic (4.2% on average between 2018 and 2019 versus 8% during COVID-19).

²¹ The keywords are derivations in French and English of the following words: digital, online, hi-tech, e-commerce, virtual, internet, telecom, and information, among others.

²² Information on the activities of entrepreneurs is missing before 2018. As a result, the sample is limited to between 2018 and 2021.

Figure 26: Proportion of nascent entrepreneurs operating digital businesses



Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Table 6 shows the results regarding COVID-19’s impact on the likelihood of a person starting a digital business. In columns (1) and (2), the dependent variable is binary and equals 1 if the startup company is digital and 0 otherwise. Column (1) shows that the pandemic accelerated the uptake of digitalization, with an increase of 4.6 percentage points. With respect to the other control variables, Canadian women had a 2.7 percentage point lower probability than men of creating a digital business.

Digitalization was more relevant to Canadians with higher education, who held a master’s degree or doctorate, with a probability that was 7 percentage points higher compared with individuals who had a high-school education or lower. Canadians aged 25 to 34 and 35 to 44 had an average probability that was 7 percentage points and 4.1 percentage points higher of creating a digital business than Canadians aged 18 to 24.

Table 6: Marginal effects of COVID-19 on the likelihood of starting a digital business

Dependent variable	(1)	(2)
	Starting a digital business	Starting a digital business
COVID-19	0.046** (0.019)	0.047** (0.020)
Gender (reference: male)		
Female	-0.027* (0.016)	-0.026 (0.016)
Education category (reference: high school diploma and lower)		
Postsecondary diploma	0.010 (0.013)	0.009 (0.014)
University degree (master's or doctorate)	0.070** (0.030)	0.063** (0.029)
Employment status (reference: works)		
Retired, student	0.237*** (0.087)	0.214*** (0.079)
Does not work	0.121 (0.086)	0.123 (0.086)
Self-employed worker	-0.009 (0.023)	-0.010 (0.022)
Age category (reference: 18 to 24 years old)		
Ages 25 to 34	0.070** (0.031)	0.068** (0.030)
Ages 35 to 44	0.041* (0.025)	0.040 (0.025)
Ages 45 to 54	0.002 (0.016)	0.002 (0.016)
Age 55 and over	0.051 (0.031)	0.056 (0.037)
Income categories (reference: first tercile)		
Second tercile	-0.033* (0.019)	-0.031 (0.019)
Third tercile	-0.027 (0.031)	-0.027 (0.030)

Ability and experience		
Ability and experience	-	0.001 (0.020)
Fear of failure	-	-0.028** (0.013)
Expected opportunities in the next six months	-	0.007 (0.011)
Number of observations	1,108	1,108

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model. The dependent variable is equal to 1 if the person starts a digital business and 0 otherwise. Due to data availability, the sample is limited to the period from 2018 to 2021. COVID-19 is a binary variable equal to 1 for the years 2020 and 2021 and 0 otherwise. The control variables include age categories, gender, income categories, employment status, and binary variables for each province. Column (2) includes perception variables such as experience and knowledge of starting a business, the perception of fear of failure, and the expected opportunities in the next six months. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

Compared with salaried workers, retirees and students were significantly more likely start a digital business, with a gap of 23.7 percentage points. This result is consistent with studies by Singh *et al.* (2003) and Manyika *et al.* (2016), which showed that the creation of digital businesses provided retirees flexible work opportunities to leverage their expertise, earn additional income, and stay active despite challenges such as technological shortcomings.

Students, meanwhile, benefited from the flexibility of a digital company to earn an income and develop skills while balancing their studies, although they faced job instability. In contrast, individuals with middle incomes were less likely to start a digital business (-3.3 percentage points), compared with lower-income individuals. The results in column (2) remain robust and the marginal effects are comparable when the model includes the perception variables, although gender, income, and age (from 35 to 44 years), do not significantly impact the likelihood of starting a digital business when perception variables are included.

6. Conclusion

This report assesses the impact of the COVID-19 pandemic on the likelihood of a Canadian adult starting a business.

The results reveal a significant drop in this probability, with a more pronounced effect on men, individuals aged 25 to 34, and those with low income. Sectors such as retail trade, the hotel and restaurant industry, and personal services recorded a significant decline in entrants during the pandemic.

The analysis of entrepreneurs' profiles during the pandemic also indicates a significant increase in nascent entrepreneurs motivated by necessity, likely due to the job shortages during this period. In contrast, the proportion of high-growth entrepreneurs, along with entrepreneurs with low international orientation also decreased. Despite the overall negative impacts, the pandemic also created opportunities for innovation and digital transformation. Some entrepreneurs were able to adapt to new realities by creating innovative, technology-focused businesses.

This report could enhance the understanding of Canadian entrepreneurs' profiles and provide relevant information to decision-makers. It could help inform policies aimed at better supporting businesses, encouraging their development, and facilitating market entry for future high-growth entrepreneurs by reducing barriers and stimulating technological innovation.

7. Appendix

7.1. Data and variable definitions

7.1.1. Main dependent variables

The main dependent variables are identified and calculated from the GEM survey questions.

Nascent entrepreneur

In the **SUBOANW** variable, the GEM survey asks respondents the following question (YES/NO):

“Are you, alone or with others, currently trying to start a new business, including any self-employment or selling goods or services to others?”.

A binary variable was created from this question.

High-growth entrepreneur

Nascent high-growth entrepreneurs are identified based on the following questions:

“Currently, how many people, not counting the owners but including exclusive subcontractors, are working for this business?”.

“Not counting the owners but including all exclusive subcontractors, how many people will be working for this business when it is five years old?”.

The size of established businesses is calculated by sector (at the two-digit level) based on responses to the first question given to the respondent for which businesses have more than five employees.²³ High-growth companies are ranked if the second question (that is, the size in the next five years) exceeds the size of established businesses in a sector.²⁴

²³ The GEM survey does not provide information on the date when the business was created, but the first year in which the business paid salaries or profits to the owners serves as an approximation.

²⁴ Ideally, the comparison should be made with companies that are exactly five years old, but there are very few observations. The process considers established businesses that are over five years old.

7.1.2. Control variables

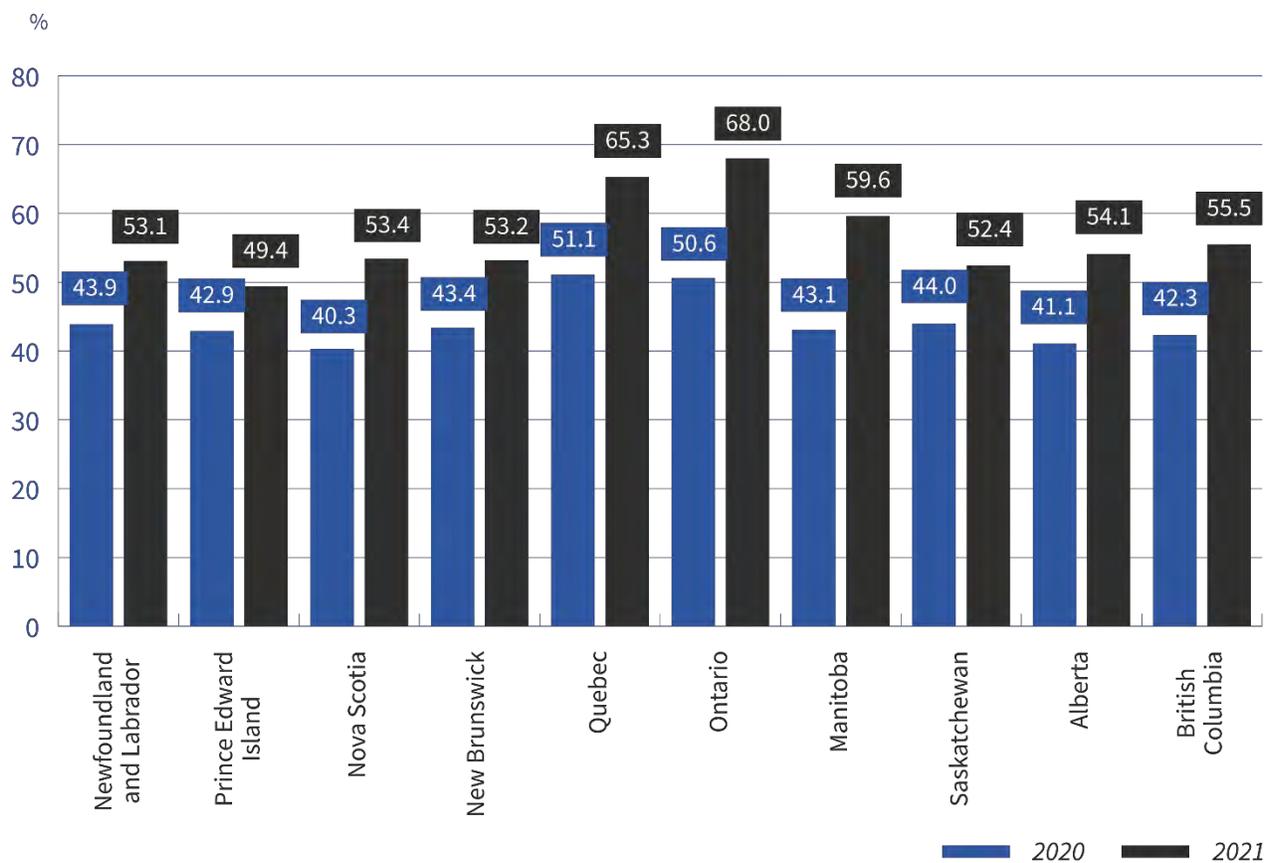
The control variables for the sociodemographic characteristics of entrepreneurs were identified and measured using the questions in the GEM survey:

Female	The GENDER variable is equal to 1 if the person is a woman and 0 if it is a man.
Age ²⁵	The AGE9C variable has six categories for the respondent's age: ages 18–24, 25–34, 35–44, 45–54, 55–64, and 65–120.
Educational level	The GEMEDUC variable provides five education categories: no secondary education, some secondary education, high school diploma, postsecondary diploma (college diploma, university degree), master's degree or doctorate. A new category variable was created that has a value of 1 if the person has a high school diploma or lower, 2 if they have a postsecondary diploma, and 3 if they have a master's degree or doctorate from a university.
Employment status	The GEMOCCU variable provides the employment status of self-employed workers according to seven categories: full-time or part-time, part-time only, retired, homemaker, student, unemployed or self-employed.
Income category	The GEMHHINC variable provides the income terciles of the person, with a value of 1 representing the lowest tercile, 2 the middle tercile, and 3 the upper tercile.
Perception of skills to start a new firm	In the SUSKILL variable, the GEM survey asks respondents the following yes/no question: “ <i>Do you have the knowledge, skill and experience required to start a business?</i> ” A binary variable was created from this question.
Perception of the fear of failure	In the FEARFAIL variable, the GEM survey asks respondents the following yes/no question: “ <i>Would fear of failure prevent you from starting a business?</i> ” A binary variable was created from this question.
Expected opportunities within six months	In the OPPORT variable, the GEM survey asks respondents the following yes/no question: “ <i>In the next six months, will there be good opportunities for starting a business in the area where you live?</i> ” A binary variable was created from this question.
Region	The CAregion variable indicates the Canadian province where the individuals reside. The following ten provinces are considered in the study: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia.
Sector	The company's main line of business. The sectors are defined at the two-digit level of the ISIC version 4 classification based on the TEAISIC4_1D variable (by filtering only the early-stage businesses with the SUBOANW variable).

²⁵ The weighting for those aged 18 to 64 representing the workforce is used in the empirical estimates. Only the five age categories are considered in this report.

7.2. Additional figures

Figure A1: Annual average of the COVID-19 stringency index by province



Note: The data covers the study period from January 2020 to July 2021.
Sources: Bank of Canada; and author's calculations.

7.3. Additional tables

Table A1: Unconditional probability of starting a business

	Average (%)		Difference	% change
	2015–2019 (before COVID-19)	2020–2021 (COVID-19)		
Nascent entrepreneurs (% of the population)				
Nascent entrepreneurs	10.6	9.3	-1.3	-12.5
Entrepreneurs in the manufacturing sector	0.5	0.8	0.3	60.8
Entrepreneurs in the business services sector	1.6	1.2	-0.4	-26.4
Entrepreneurs in the consumer services sector	2.4	1.8	-0.6	-23.9
Entrepreneurs in other services	6.1	5.4	-0.6	-10.1
Types of nascent entrepreneurs				
Entrepreneurs involved in creating digital businesses	4.2	8	3.8	90.5
High-growth entrepreneurs	16.9	12.2	-4.6	-27.3
Necessity entrepreneurs	19.6	28.5	8.9	45.3
Entrepreneurs involved in creating new products	30.00	51.1	21.1	70.5
Entrepreneurs with more than 1% of clients coming from abroad	48.5	35.0	-13.5	-27.8
Entrepreneurs with more than 25% of their clients coming from abroad	24.3	21.5	-2.8	-11.4
Entrepreneurs with over 50% more employees in the next five years	18.9	14.6	-4.3	-22.6

Note: Table A1 shows the percentage of nascent entrepreneurs before and after COVID-19.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

Table A2: Assessment of the impact of COVID-19 on the likelihood of starting a business

	(1) Starting up a business	(2) Starting a high-growth company
2017	0.013** (0.006)	0.002 (0.022)
2018	0.003 (0.007)	0.022 (0.032)
2020	-0.010** (0.004)	-0.033* (0.019)
2021	-0.009* (0.005)	-0.034 (0.030)
Number of observations	16,273	1,619

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model of specification (4). The dependent variable is equal to 1 if the person starts a business and 0 otherwise. The shock of COVID-19 occurred starting in 2020. To identify the model, the year 2019 is removed from the estimates. Column (1) presents the results on the probability of starting any business compared with the reference year 2019. Column (2) presents the results on the probabilities that an adult will start a high-growth business, knowing that they have started a business. The control variables include age categories, gender, income categories, employment status, binary variables for each province, perception variables such as experience with and knowledge of starting a business, the perception of fear of failure, and expected opportunities in the next six months, as well as binary variables for each province. The standard deviations are clustered by province-year pairs, * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author’s calculations.

Table A3: Average total marginal effects of COVID-19 according to sociodemographic characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
	Starting up a business	Starting up a business	Starting up a business	Starting a high-growth company	Starting a high-growth company	Starting a high-growth company
Gender						
Male	-0.021*** (0.007)	-	-	-0.045* (0.027)	-	-
Female	-0.001 (0.007)	-	-	-0.022 (0.031)	-	-
Income category						
First tercile	-	-0.018* (0.010)	-	-	-0.014 (0.033)	-
Second tercile	-	-0.013* (0.007)	-	-	-0.014 (0.030)	-
Third tercile	-	-0.004 (0.005)	-	-	-0.081** (0.039)	-
Age category						
Ages 18 to 24	-	-	0.018 (0.015)	-	-	0.027 (0.060)
Ages 25 to 34	-	-	-0.028** (0.013)	-	-	-0.033 (0.053)
Ages 35 to 44	-	-	-0.010 (0.013)	-	-	-0.085* (0.044)
Ages 45 to 54	-	-	-0.014 (0.011)	-	-	0.031 (0.058)
Age 55 and over	-	-	-0.010 (0.011)	-	-	-0.140*** (0.054)
Number of observations	16,273	16,273	16,273	1,619	1,619	1,619

Notes: The estimates shown in the table correspond to the estimated average marginal effects calculated after the probit model of specification (6). In columns (1) to (3), the dependent variable is equal to 1 if the person starts a business and 0 otherwise. In columns (4) to (6), the dependent variable is equal to 1 if the entrepreneur starts a high-growth business. In columns (1) to (6), an interaction variable is included in the regressions to measure the impact of COVID-19 in relation to the individual's characteristics. The control variables include age categories, gender, income categories, employment status, binary variables for each province, perception variables such as experience with and knowledge of starting a business, the perception of fear of failure, and expected opportunities in the next six months, as well as binary variables for each province. The standard deviations are clustered by province-year pairs. * indicates a significance level of 10%; ** 5%; *** 1%.

Sources: Global Entrepreneurship Monitor, *Adult Population Survey*, 2015–2021; and author's calculations.

Bibliography

Albert, C., A. Caggese, B. González and V. Martin-Sanchez. “Income inequality and entrepreneurship: Lessons from the 2020 COVID-19 recession.” From *Journal of Banking & Finance*, vol. 149, 2023, 106779.

Amankwah-Amoah, J., Z. Khan, G. Wood and G. Knight. “COVID-19 and digitalization: The great acceleration.” From *Journal of Business Research*, vol. 136, 2021, pp. 602–611.

Amador, J., C. Melo Gouveia and A. C. “Covid-19, lockdowns, and international trade: evidence from firm-level data.” From *Empirical Economics*, 2023, 1–40.

Amore, M. D., V. Pelucco and F. Quarato. “Family ownership during the Covid-19 pandemic.” From *Journal of Banking & Finance*, vol. 135, 2022, 106385.

Ascari, G., A. Colciago, and R. Silvestrini. “Business dynamism, sectoral reallocation and productivity in a pandemic.” From *European Economic Review*, vol. 156, 2023, 104473.

Beland, L. P., O. Fakorede and D. Mikola. “Short-term effect of COVID-19 on self-employed workers in Canada.” From *Canadian Public Policy*, vol. 46, no S1, 2020, pp. S66-S81.

Bloom, N., P. Bunn, P. Mizen, P. Smietanka and G. Thwaites. “The impact of COVID-19 on productivity.” From *Review of Economics and Statistics*, 2023, pp. 1–45.

Bushnik, T., S. Earl, J. Clark, and J. Cabot. “COVID-19 infection in the Canadian household population.” From *Health Rep*, vol. 33, no. 4, 2022, pp. 24–33.

Ferrando, A., (2020), “Firms’ expectations on access to finance at the early stages of the Covid-19 pandemic.” From *European Central Bank Working Paper Series*, No. 20202446, 2020.

Ferraris, A., G. Santoro and A. C. Pellicelli. “‘Openness’ of public governments in smart cities: removing the barriers for innovation and entrepreneurship.” From *International Entrepreneurship and Management Journal*, vol. 16, 2020, pp. 1259–1280.

Heckman, J. J. “Sample selection bias as a specification error.” From *Econometrica: Journal of the Econometric Society*, 1979, pp. 153–161.

Kikul, J., J. Vetter, T. M. Lincoln and C. Exner. “Effects of cognitive self-consciousness on visual memory in obsessive-compulsive disorder.” From *Journal of Anxiety Disorders*, vol. 25, No. 4, 2011, pp. 490–497.

Lafrance-Cooke, A. 2021. *Starting a business in a pandemic: The experiences of businesses created during COVID-19*. Economic and Social Reports. Product No. 36-28-0001 in the Statistics Canada catalog. Ottawa: Statistics Canada.

Liñán, F. and I. Jaén. “The Covid-19 pandemic and entrepreneurship: some reflections.” From *International Journal of Emerging Markets*, vol. 17, No. 5, 2022, pp. 1165–1174.

Manyika, J., S. Lund, J. Bughin, K. Robinson, J. Mischke and D. Mahajan. 2016. *Independent work: Choice, necessity, and the gig economy*. McKinsey Global Institute.

Massar, K., A. Nübold, R. V. Doorn and K. Schelleman-Offermans. “Picking up the reins: the crucial role of psychological capital in the transition from long-term unemployment to entrepreneurship.” From *Entrepreneurial and Small Business Stressors, Experienced Stress, and Well-Being*. Emerald Publishing Limited, 2020, pp. 147–170.

Moradi, M., N. Imanipour, Z. Arasti and R. Mohammadkazemi. “Poverty and entrepreneurship: a systematic review of poverty-related issues discussed in entrepreneurship literature.” From *World Review of Entrepreneurship, Management and Sustainable Development*, vol. 16, No. 2, 2020, pp. 125–152.

Statistics Canada. [Table 33-10-0722-01, Experimental estimates for business openings and closures by employment size for Canada, provinces and territories, census metropolitan areas, seasonally adjusted](#).

Singh, G. and A. DeNoble. “Early retirees as the next generation of entrepreneurs.” From *Entrepreneurship Theory and Practice*, vol. 27, No. 3, 2023, pp. 207–226.

Schumpeter, J. *Capitalism, Socialism, and Democracy*. New York: Harper & Bros., 1942.

Tam, S., S. Sood and C. Johnston. 2020. *Impact of COVID-19 on small businesses in Canada, third quarter 2020*. Statistics Canada.