



**THE IMPACT OF THE
HIGHLY AFFECTED
SECTORS CREDIT
AVAILABILITY PROGRAM
ON BUSINESS CLOSURE
AND GROWTH:
*EVIDENCE FROM
THE 2020 COVID-19
PANDEMIC***

Innovation, Science and Economic Development Canada
Small Business Branch
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2024

The impact of the Highly Affected Sectors Credit Availability Program on business closure and growth: Evidence from the 2020 COVID-19 pandemic

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2024

Cat. No. Iu188-166/2024E-PDF

ISBN 978-0-660-70492-0

This publication is available online and in PDF format at ic.gc.ca/smeresearch. Cette publication est aussi disponible en français sous le titre *L'impact du Programme de crédit pour les secteurs très touchés sur les fermetures et les croissances d'entreprises : Données probantes de la pandémie de COVID-19 de 2020*. To obtain a paper copy of this publication or an alternate format (Braille, large print, etc.), please fill out the [Publication Request form](#) or contact:

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ABSTRACT

The 2020 COVID-19 pandemic had far-reaching implications for business performance worldwide, prompting governments to implement support measures to mitigate its adverse effects. In Canada, the federal government introduced various programs, including the Highly Affected Sectors Credit Availability Program (HASCAP), to aid businesses severely affected by the pandemic. This research report investigates the effects of HASCAP use on business closure and growth, while controlling for business characteristics, pre-pandemic attributes, and the concurrent use of other government intervention programs, such as the Canada Emergency Wage Subsidy (CEWS), the Canada Emergency Business Account (CEBA), and the Canada Emergency Commercial Rental Assistance (CECRA) initiatives. To isolate the effect of HASCAP support, a statistical technique widely used in empirical research was used to compare the performance of HASCAP-backed companies to otherwise similar companies that did not receive HASCAP support.

Between March and September 2021, approximately 10,000 businesses received HASCAP assistance. Notably, these enterprises experienced a decrease of 5 percentage points in closure rates, defined as the absence of employment for at least one month for a specified period, during the subsequent six-month period from October 2021 to March 2022 post-intervention. This estimate implies that approximately 500 fewer HASCAP firms would have remained open six months post-intervention without HASCAP support. This finding remains valid even after accounting for business characteristics before the pandemic, seasonal fluctuations in closures, and the use of other federal government COVID-19 intervention programs.

The analysis also reveals that businesses benefiting from HASCAP demonstrated higher employment growth of 0.22 percentage points between February 2021 and February 2022. This implies that, on average, HASCAP-supported firms would have hired two fewer individuals if they had not received HASCAP assistance. This finding underscores the positive impact of the program in fostering growth among supported businesses.

The evidence presented in this report highlights the crucial role played by HASCAP in bolstering business survival and growth during the unprecedented challenges posed by the COVID-19 pandemic. Policymakers and economic stakeholders can derive valuable insights from this study when designing, implementing, and evaluating future support measures for businesses facing similar crises. The findings contribute to a deeper understanding of the effectiveness of targeted intervention programs and their implications for economic recovery and resilience despite global crises.

1. INTRODUCTION

Small businesses have long been recognized as vital drivers of the Canadian economy, accounting for approximately 98% of all employer businesses and employing about two-thirds of the workforce.¹ In 2019, they collectively contributed nearly one-fourth of Canada's gross domestic product (GDP).² However, the emergence of the COVID-19 pandemic in first quarter of 2020 introduced unprecedented challenges to the small business sector. The pandemic prompted the implementation of measures that mandated intermittent non-essential operations and the enforcement of social distancing protocols. Consequently, this led to temporary halts in operations and capacity constraints, particularly impacting businesses and services reliant on close interpersonal interactions.

Furthermore, a noticeable decline in business ownership was observed accompanied by a surge in unemployment rates. According to the 2020 [Survey on Financing and Growth of Small and Medium Enterprises](#), 33 % of small-and medium-sized enterprises (SMEs) temporarily closed due to the COVID-19 pandemic. Research conducted by Beland *et al.* (2020) and Lemieux (2020) documented a 15% reduction in business ownership between February and May 2020, coupled with a 32% decline in aggregate weekly work hours among employees. Additionally, there was a concurrent 15% decline in overall employment.

Moreover, the performance of small businesses was severely affected, with over 60% of firms experiencing a decline in revenues in 2020 compared to the preceding year. In fact, more than one-third of small businesses reported a substantial revenue reduction exceeding 30%.³ Additionally, the value of loan claims for the [Canada Small Business Financing Program](#) surged

throughout 2020/21, reaching levels comparable to those seen during the 2008 recession.

The Canada Small Business Financing Program (CSBFP) is a loan loss-sharing program designed to facilitate access to financing for SMEs to establish, expand, modernize, and improve their businesses. This surge disproportionately impacted firms less than a year old, a majority of which had invested in leasehold improvements.⁴

To address the adverse effects of the pandemic on the small business sector, the Canadian government implemented a range of support programs, including the Canada Emergency Business Account (CEBA), the Canada Emergency Wage Subsidy (CEWS), and the Canada Emergency Commercial Rent Assistance (CECRA) and the Highly Affected Sectors Credit Availability Program (HASCAP).

This study focuses on analyzing the impact of the HASCAP on the closure and growth of Canadian small businesses. By examining the outcomes of this specific program, we can gain insights into its effectiveness and implications for the small business sector's recovery in Canada.

A growing literature has investigated the effect of the pandemic on the economic activity of Canadian businesses (e.g., Blit *et al.* 2020; Grieder *et al.* 2021; Gu 2020; Tam, Sood and Johnston 2020), but less work has been conducted on the effect of government support on business performance. Leung and Liu (2022) have provided evidence on the relationship between the use of the CEWS and the closure and growth of businesses. Their main findings indicate that businesses that used CEWS were less likely to close and had higher employment growth.⁵

¹ Statistics Canada, [Analysis on small businesses in Canada, first quarter of 2023](#).

² Innovation, Science and Economic Development Canada, [Key Small Business Statistics 2022](#).

³ Statistics Canada, [Canadian Survey on Business Conditions, first quarter 2021](#).

⁴ CSBFP administrative database.

⁵ Statistics Canada, [The Canada Emergency Wage Subsidy program and business survival and growth during the COVID-19 pandemic in Canada](#).

1.1. HIGHLY AFFECTED SECTORS CREDIT AVAILABILITY PROGRAM (HASCAP)

HASCAP was implemented to provide financial assistance to small and medium-sized businesses severely impacted by the COVID-19 pandemic, particularly those that experienced a revenue decline of 50% or more between 2019 and 2020.⁶ Its primary goal is to support businesses in covering their daily operational expenses and encouraging long-term growth. The program was executed through the Business Development Bank of Canada (BDC) in collaboration with participating Canadian financial institutions, offering government-guaranteed loans ranging from \$25,000 to \$1 million. HASCAP loans had a 4% fixed interest rate paid monthly and amortization up to 10 years with no principal repayments for 12 months from the date of loan advance.⁷ Additionally, businesses that have been severely impacted, such as chains of hotels or restaurants operating as part of a single entity, may qualify for financial support of as much as \$6.25 million. HASCAP was active from February 1, 2021 to March 31, 2022, during which approximately 17,000 loans were disbursed, totaling \$3.7 billion. The average loan amount was \$217,000.⁸ However, for our study, we focus on businesses that received HASCAP between

March and September 2021, which represents about 65% of total loans disbursed.

To be eligible for HASCAP, businesses were required to demonstrate a year-over-year revenue decrease of at least 50% within three months of the eight months prior to their application. Additionally, they had to provide evidence of applying for either the CEWS or the CECRA. Eligible businesses began to apply for HASCAP loans starting from February 2021.⁹

In the subsequent sections, we outline the data sources used in our analysis and provide summary statistics on HASCAP utilization, the characteristics between HASCAP recipients and non-HASCAP businesses, business closure rates, and employment growth rates. Section 3 describes the methodological approach employed to assess the program's impact on the closure and growth of small businesses that used HASCAP. Moving forward, Section 4 presents the comprehensive findings from our impact analysis. Finally, in Section 5, we offer concluding remarks and engage in a comprehensive discussion on the HASCAP program, drawing meaningful insights from our research.

2. DATA

This study uses data from three primary sources to examine the impact of HASCAP support on business closure and growth for HASCAP companies. The sources include the Monthly Business Openings and Closures data from February 2021 to March 2022, the National Account Longitudinal Microdata File (NALMF) for the years 2019 and 2020, and data from the HASCAP, CEBA, CECRA, and CEWS programs.

The analysis is conducted by linking the business openings with variables from the NALMF files, which encompass financial information, employee figures, age, industry details, and other business characteristics. Additionally, data from the HASCAP, CEBA, CECRA, and CEWS programs are used to create indicator variables.

These linked datasets facilitate the identification of HASCAP and non-HASCAP recipient businesses, enabling the tracking of closures and changes in employee size.

⁶ [HASCAP Canada](#).

⁷ See [Highly Affected Sectors Credit Availability Program \(HASCAP\)](#).

⁸ Business Development Bank of Canada, [HASCAP Guarantee statistics by region and sector](#).

⁹ Innovation, Science and Economic Development Canada, [Minister Ng announces the launch of the Highly Affected Sectors Credit Availability Program](#).

Specifically, the final dataset captures employer (at least one employee) and non-employer businesses in the 2019 and 2020 NALMF files with monthly information on their employee size and closure rate from February 2021 to March 2022.¹⁰

The analysis uses an indicator variable to identify businesses that received HASCAP loans between March 2021 and September 2021.

Approximately 10,000 businesses received an average of about \$240,000 in HASCAP loans between March and September 2021. Table 1 provides evidence that HASCAP recipient businesses were more severely impacted by the pandemic than non-HASCAP businesses. For instance, the average change in employee size from 2019 to 2020

for HASCAP businesses decreased from 12 to 9 employees, while non-HASCAP businesses only experienced a slight decline from 11 to 10 employees. Table A1 in the appendix highlights that about 60% of HASCAP companies experienced either no change or a decrease in average employee size between 2019 and 2020 compared with 22% of non-HASCAP companies facing a similar situation. Furthermore, the average revenue for HASCAP decreased from \$1.6 million to approximately \$923K between 2019 and 2020, whereas non-HASCAP businesses showed a more moderate revenue reduction of \$1.23 million to \$1.17 million.

Additionally, HASCAP businesses had a higher total debt ratio in 2020, measuring about 1.23, compared to 0.70 for non-HASCAP recipients.¹¹

Table 1: Employee size, revenue, and debt ratio statistics of businesses

	Non-HASCAP	HASCAP
	<i>Mean</i>	<i>Mean</i>
Average employee size (2019)	11.09	12.38
Average employee size (2020)	10.23	8.64
Revenue (2019)	\$1,229,430.00	\$1,571,571.00
Revenue (2020)	\$1,169,971.00	\$922,706.00
Total debt ratio 2020	0.70	1.23

Sources: Statistics Canada, NALMF; and data from HASCAP programs.

Corresponding with the evidence of a greater impact of COVID-19 on HASCAP businesses, a higher percentage of firms that received HASCAP loans also received other COVID-19 intervention assistance.

As indicated by the eligibility criteria in Table 2, nearly all HASCAP loan recipients also received at least one other government intervention program (96%), whereas only about 31% of non-HASCAP business sought government support. Among the recipients, 88% also received CEBA, 77% received CEWS and 43% received CECRA.

¹⁰ Approximately 1.9 million distinct business entities were accounted for in the 2019 and 2020 NALMF files, successfully linked to business openings and closures. Furthermore, it is worth noting that due to the limited number of HASCAP recipients within the entire population, non-HASCAP descriptive statistics is a close approximate of the overall firm population statistics.

¹¹ The debt ratio is defined as the total current liability/total current asset.

Table 2: Percentage use of other COVID-19 government support programs

	Non-HASCAP (%)	HASCAP (%)
CEWS	14.8	76.8
CEBA	27.4	87.8
CECRA	3.2	43.1
Any one of these government interventions	31.1	96.2

Sources: Statistics Canada, NALMF; and data from HASCAP, CEBA, CEWS, and CECRA program.

Below, we present a comparison of the characteristics of businesses that were beneficiaries of HASCAP support and those that were not. Noteworthy observations related to age, provincial location, and industry details are highlighted.

Age of businesses

Illustrated in Table 3, HASCAP recipient businesses tended to be relatively younger, with an average age of 11 years in 2021, in contrast to the 13 years average for non-HASCAP businesses.

When considering specific age ranges, a significant share of HASCAP recipients (21%) fell within the 5- to 7-year-old age category. Notably, around half of all HASCAP recipients were less than 7 years old.

Table 3: Age of HASCAP and non-HASCAP recipient businesses

	Non-HASCAP	HASCAP
Average age in 2021	12.7	10.7
Age category (%)		
1 to 2	11.48	7.57
3 to 4	12.7	19.6
5 to 7	15.01	21.4
8 to 9	8.17	9.64
10 to 14	15.52	16.04
15 to 19	11.41	9.68
20 to 24	10.00	6.20
25 to 29	10.09	5.55
30 to 34	5.57	3.81
35 to 39	0.01	0.00
40+	0.04	0.50

Sources: Statistics Canada, NALMF; and data from HASCAP program.

Provincial location

As shown in Table 4, HASCAP recipients were overrepresented in Ontario and Alberta, accounting for 55% and 18% of the total HASCAP recipients, respectively.

On the other hand, for non-HASCAP businesses, the highest numbers were observed in Ontario and Quebec,

comprising 40% and 20% of non-HASCAP businesses, respectively. A lower proportion of Quebec businesses applied for a HASCAP loan because the province offered several COVID-19 intervention finance and support programs.¹²

Table 4: Provincial location of HASCAP and non-HASCAP recipient businesses

	Non-HASCAP (%)	HASCAP (%)
Atlantic	4.8	2.4
Quebec	20.0	13.4
Ontario	39.7	55.3
Manitoba	2.7	1.6
Saskatchewan	3.0	1.0
Alberta	14.2	17.9
British Columbia	15.7	8.4

Sources: Statistics Canada, NALMF; and data from HASCAP program.

Industry details

Table 5 provides insights into the industry profiles of HASCAP loan recipients, highlighting the sectors disproportionately affected by COVID-19 as a result of lockdowns and social distancing measures. The accommodation and food service industries accounted for 32% of HASCAP recipients, followed by the retail trade with 9%. These sectors, due to their high-contact and public-facing nature, were particularly vulnerable during

the pandemic, prompting a higher demand for HASCAP assistance to navigate challenging economic conditions.

In contrast, non-HASCAP businesses exhibited different industry distributions. The professional, scientific, and technical services (15%), followed by construction (13%). These industries demonstrated relatively lower representation among HASCAP recipients, indicating the varying impacts of pandemic-related restrictions across different sectors of the economy.¹³

¹² One of these initiatives is administered through the *Caisse de depot et placement du Quebec* (CDPQ), which allocated \$4 billion to support Quebec businesses facing disruptions due to COVID-19, as detailed in the article "[CDPQ Joins the Collective Effort During the COVID-19 Crisis](#)" | CDPQ. Another program, known as the Concerted Temporary Action Program for Businesses (PACTE), offered loan guarantees of at least \$50,000 to address cash flow shortages, as outlined in the article "[A Solution to Your Liquidity Problems: The Concerted Temporary Action Program for Businesses \(PACTE\)](#)" | CCMM. Additionally, the Quebec government launched the *Programme actions concertées pour le maintien en emploi* (PACME) initiative, aimed at assisting companies in implementing teleworking measures and enhancing the skills of their employees who are now working from home. Eligible companies had the opportunity to receive reimbursements of up to 100% of their eligible expenses, with a maximum limit of \$100,000. These expenses covered various aspects, including trainer fees, equipment acquisitions, and human resources activities. For more information, please refer to the article "[COVID-19 Pandemic – PACME: Companies Invited to Contact Collective Promoters](#)" from the Government of Quebec's website. A detailed list of COVID-19 support initiatives can also be found on this webpage: [COVID-19: Funding and financial relief programs for startups and small businesses](#).

¹³ Industries are determined using the first two digits of the NAICS code. See the [North American Industry Classification System \(NAICS\) Canada 2017 Version 3.0](#).

Table 5: Industry distribution of HASCAP and non-HASCAP recipient businesses

	Non-HASCAP (%)	HASCAP (%)
Agriculture, forestry, fishing and hunting	4.0	0.4
Utilities, mining, quarrying, oil and gas extraction	0.9	0.6
Construction	12.7	6.2
Manufacturing	3.2	4.4
Wholesale trade	3.4	4.3
Retail trade	7.1	9.4
Transportation and warehousing	6.1	3.5
Information and cultural industries	1.5	1.7
Finance and insurance	8.6	1.3
Real estate and rental, and leasing	9.8	3.2
Professional, scientific, and technical services	15.1	8.7
Management of companies and enterprises	1.7	0.2
Administrative and support, waste management and remediation services	4.2	5.7
Educational services	1.1	3.0
Health care and social assistance	6.9	2.3
Arts, entertainment, and recreation	1.5	6.1
Accommodation and food services	4.5	31.5
Other services (except public administration)	7.7	7.7
Total	100	100

Sources: Statistics Canada, NALMF; and data from HASCAP program.

To achieve the central aim of our analysis, which is to assess the effects of HASCAP loans on business performance, we focus on evaluating two primary outcomes: business growth and business closure.

Business growth is quantified by assessing the change in employment between February 2021, the month preceding the HASCAP intervention, and February 2022, one year after the intervention. As depicted in Table 6, the data reveal that HASCAP recipient businesses exhibit

a notably higher average growth rate compared to non-HASCAP businesses. Specifically, HASCAP businesses experience an average growth rate of 1.2%, whereas non-HASCAP businesses demonstrate a comparatively modest average growth of 0.25%. From February 2021 to February 2022, HASCAP firms observed a substantial increase in employment, from an average of 6 to 10 employees. In contrast, non-HASCAP firms record a more conservative change, with employment figures moving from approximately 12 to 13 employees.

Table 6: Business size growth from February 2021 to February 2022

	Non-HASCAP	HASCAP
Average employee size (Feb 2021)	11.73	6.31
Average employee size (Feb 2022)	12.94	9.50
Average growth rate (%)	0.25	1.21

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Business closure is quantified using monthly closure rates. A business is classified as “closed” if it exhibited employment in the prior month but registers no employment in the current month, irrespective of whether the closure is of a temporary or permanent nature.¹⁴

This evaluation focuses specifically on closure rates in the months subsequent to the intervention.

To establish a robust and comprehensive understanding of business closure rates, we adopt two distinct measures.

Measure one:

In the first measure, we examined the closure rates over a six-month period following HASCAP intervention, spanning from October 2021 to March 2022. Here, the closure rate is defined as the percentage of firms that experienced at least one closure during the observation period. For example, following authorization between March and June 2021, measure one pertaining to the observation period from October 2021 to December 2021 indicates whether a business was closed for at least one month during that observation period. We further dissect this method into three distinct criteria:

- Close 1 pertains to the observation period from October to December 2021, encompassing all firms and specifically focusing on those that received HASCAP loans between March and June 2021.
- Close 2 focuses on the period from January 2022 to March 2022, examining all firms while emphasizing those that received HASCAP support between July and September 2021, allowing sufficient time post-intervention for observation.
- Close 3 examines the closure rate during the entire observation period from October 2021 to March 2022, encompassing all firms.

¹⁴ Statistics Canada, [Monthly Business Openings and Closures: Experimental Series for Canada, the Provinces and Territories, and Census Metropolitan Areas](#).

Table 7 presents a statistical depiction that corroborates the findings from the closure rates, indicating that HASCAP recipients consistently exhibit lower closure rates when compared to non-HASCAP businesses.

The largest difference in the closure rate between HASCAP and non-HASCAP was observed in Close 3 at 4 percentage points.

Table 7: Business closure (measure one)

	Non-HASCAP (%)	HASCAP (%)	Difference (non-HASCAP – HASCAP)
Close 1 (March to September cohort)	6.4	5.7	0.7
Close 1 (March to June cohort)	6.4	5.5	0.9
Close 2 (March to September cohort)	11.1	8.3	2.8
Close 2 (July to September cohort)	11.1	8.7	2.4
Close 3 (March to September cohort)	16.7	12.6	4.1

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Measure two:

In our second approach, we aim to assess business closures at one-, three-, and six-month intervals following the disbursement of their HASCAP loans, using the respective month of loan authorization month as the reference point. For example, after being authorized in March 2021, we determine whether a business was closed in April 2021 (one month after authorization), June 2021 (three months after authorization), or during September 2021 (six months after authorization).

However, a challenge emerges when dealing with non-recipient firms lacking explicit authorization dates. To address this issue, we employ a randomization technique that assigns authorization months to non-HASCAP firms based on the distribution observed among HASCAP firms across the seven months spanning from March 2021 to September 2021.¹⁵ Subsequently, we compute closure rates for the one-, three-, and six-month intervals. For example, businesses authorized in March 2021 are assessed for closure rates in April, June, and September 2021 for all HASCAP firms and for the sample of non-HASCAP firms that have been assigned the March authorization month, representing the one-, three-, and six-month intervals, respectively. Similar intervals are applied to subsequent authorization months.

What sets this method apart is that the alternative approach would have involved comparing HASCAP firms with different authorization months to the closure rates of all non-HASCAP firms for the month of interest in question. For instance, when evaluating the six-month closure rates for HASCAP firms authorized in March 2021, the alternative would have compared them to the closure rates of all non-HASCAP firms in September 2021. With our method, we ensure that the comparison is made against a distinct subset of non-HASCAP firms assigned as the March cohorts. This approach becomes especially valuable when assessing closure rates for HASCAP cohorts authorized in June 2021, three months post-authorization, as the methodology ensures that the comparable non-HASCAP closure rates in September 2021 differ from the closure rates of all non-HASCAP firms, as only a specific subset of non-HASCAP firms is designated as the June cohorts.

¹⁵ The randomization is operational using a simple randomization technique in Stata that randomly assigns an identity number to each non-HASCAP firm, sorting the firms by this new ID and then manually assigning pseudo-loan authorization months to the non-HASCAP sample that match the proportion of HASCAP firms in each authorization month. For instance, if 13% of HASCAP firms have a March authorization month, we assign 13% of non-HASCAP firms as having March authorization, non-HASCAP firms are assigned a pseudo-loan authorization month.

Table 8 provides evidence indicating consistently lower closure rates among HASCAP recipient firms than their non-HASCAP counterparts.

The difference between the closure rate between HASCAP and non-HASCAP was the largest six months after intervention, at 0.6 percentage points.

Table 8: Business closure (measure two)

	Non-HASCAP (%)	HASCAP (%)	Difference (non-HASCAP – HASCAP)
Closed after 1 month	1.9	1.7	0.2
Closed after 3 months	2.1	1.9	0.2
Closed after 6 months	2.6	2.0	0.6

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

These two methods of capturing business closures provides an understanding of the HASCAP effect. The first measure considers monthly business cycle shocks, seasonality, and other external factors affecting monthly closure rates.

While the second measure avoids capturing business cycle shocks by randomizing non-recipients' pseudo-loan authorization dates.

3. METHODOLOGY

In our economic research, a fundamental consideration revolves around the potential observable differences in firm-level characteristics between those who received HASCAP support and those who did not. Due to the requirement for a minimum 50% revenue decline as eligibility for a HASCAP loan, a simple comparison of growth and closure rates between the two groups would yield biased estimates because firms heavily impacted by the pandemic were more likely to self-select into HASCAP borrowing.

To address comparability concerns and establish a meaningful connection between utilization of HASCAP and the growth and closure of participating businesses, we draw inspiration from the approach of Lin and Ye (2009), employing a Propensity Score Matching (PSM) methodology, specifically employing nearest neighbor matching.

This aims to create a more balanced selection of non-HASCAP firms for comparability purposes in our analysis.

PSM is a statistical technique widely used in empirical research to generate a well-identified estimate of the average treatment effect on the treated observations. It works by mitigating selection bias through aligning treated and untreated observations, based on their estimated likelihood of receiving a treatment (Rubin, 1973). In our context, this probability pertains to the utilizing HASCAP loans. This technique hinges on two critical assumptions—the common support assumption and the “unconfoundedness” assumption (Rosenbaum and Rubin, 1983). The common support assumption ensures that matches can be identified for each treated unit and necessitates an overlap in the propensity score distribution between the treated and untreated groups.

On the other hand, the “unconfoundedness” assumption implies that considering observed covariates, the differentiation between treatment and non-treatment group, is unrelated to potential outcomes. This is essential for ensuring that the groups remain comparable post-matching.

When adequate explanatory variables are available and these two assumptions are met, researchers typically resort to the t-test to assess balance post-matching (Stuart, 2010). The balance test entails comparing the means of covariates between treated and matched untreated cases to determine balance.

As a general guideline, the standardized difference should not exceed 10% (Ho *et al.*, 2007). Once the matched dataset satisfies the balance assessment, PSM

offers unbiased estimates, conditional on the common support and unconfoundedness assumptions, in the evaluation of treatment effects in observational situations where the random assignment of treatment is not feasible. Numerous studies investigating program or policy impact, much like ours, have employed PSM for analysis (Huang and Rivard, 2019; Leuven and Sianesi, 2018; Gebrehiwot and Van der Veen, 2015; Lin and Ye, 2009; Dehejia and Wahba, 2002).

The PSM methodology unfolds across two key stages as detailed below:

→ **Stage one: Estimating the propensity score**

The initial stage entails the estimation of predicted probabilities for each observation using a logistic regression model, where the dependent variable is a HASCAP participation indicator, denoted as $hascap_i$. The model is articulated as follows:

$$hascap_i = \beta X_i + \alpha_1 gov_i + \alpha_2 \log Revenue_{19} + \alpha_3 TotalDebtRatio_{20} + u_i.$$

Here, $hascap_i$ signifies a binary variable representing whether a business received HASCAP support between March and September 2021. The probability of HASCAP use hinges on a vector of business attributes, captured in X_i , which include factors such as industry, employee size in February 2021, business age in 2021, and the firm's provincial location. Furthermore, the probability depends on a firm's financial, specifically $\log Revenue_{19}$, that represents the logarithm of the total revenue in 2019, and $TotalDebtRatio_{20}$, the total-liability-to-debt ratio in 2020.¹⁶ The dummy variable gov_i takes a value of 1 if the business used at least one of the three other government COVID-19 intervention programs (i.e., CEWS, CEBA, or CECRA).¹⁷ The results of the first-stage logistics are presented in Table A5 in the Appendix.

→ **Stage two: Estimating average treatment effects on the treated**

The subsequent step involves a direct estimation of the average treatment effect on the treatment (ATT) group, the ATT measures the average difference in outcomes between treated (HASCAP recipient) and comparable untreated (non-HASCAP recipient) businesses. The outcomes as defined in the previous section are the business growth and closure of HASCAP firms. Assuming that the underlying assumptions of PSM hold, this comparison allows us to quantify the causal effect of the use of HASCAP for HASCAP firms. Mathematically, the ATT is calculated as follows:

$$E(\alpha_{ATT}) = E(Y^T | S = 1, X) - E(Y^C | S = 0, X),$$

where α_{ATT} denotes the average treatment on the treated, Y^T and Y^C are respectively the outcome for the observations in the treatment group and in the control group, S denotes a dummy variable representing participation in the program and X is a vector of observable variables.

¹⁶ Although businesses were required to demonstrate a minimum 50% year-over-year decline in revenue within three to eight months of the eight months preceding their application, we could not incorporate this specific criterion into our modelling approach due to data limitations. However, we included other relevant criteria in our model, such as proxies for revenue decline through participation in other government intervention programs. Furthermore, our findings remained largely consistent when we conducted the model with the identical specifications, including revenue growth between 2019 and 2020, while excluding the variable ' $\log Revenue_{19}$ '.

¹⁷ There may be some variability in how the dummy variables for government interventions impact HASCAP participation. For example, receiving CEWS (which, aside from timing, shares some similarities with HASCAP eligibility) may have a different effect compared to receiving CEBA. Similarly, receiving CEWS for an extended period, such as six months, may differ from receiving it for just one month. However, our results maintain a high degree of consistency even when we introduced variations in the model's specifications for dummy variables representing these government interventions. To provide an example, we employed distinct flags for the two necessary eligibility programs (CEWS and CECRA) and a separate flag for CEBA. Furthermore, our estimated coefficients exhibit consistency across various model specifications, including employing exact industry matching and utilizing continuous variables for the age of a business.

By applying this two-step approach, we aim to quantify the impact of HASCAP loans on business closure and growth for businesses that receive HASCAP by comparing observably similar businesses. The PSM methodology reduces the selection bias that affects both the use of HASCAP and business performance.

4. RESULTS

4.1. RESULTS FROM MATCHING

Upon refining our sample group to achieve an improved balance between HASCAP and non-HASCAP firms, the matching results based on the newly selected sample, the differences in the outcome variables were recalculated.¹⁸

As shown in Table 9, the analysis of business employment growth continues to reveal a distinction between HASCAP and non-HASCAP firms. Specifically, the data indicate a 0.24% average employment growth for non-recipients, compared to a more pronounced 1.3% for their HASCAP counterparts.

Table 9: Business growth between February 2021 and February 2022

	Before PSM		After PSM	
	<i>Non-HASCAP</i>	<i>HASCAP</i>	<i>Non-HASCAP</i>	<i>HASCAP</i>
Average employee size (February 2021)	11.73	6.31	10.30	7.01
Average employee size (February 2022)	12.94	9.50	11.10	10.52
Average growth rate (%)	0.25	1.21	0.24	1.28

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table 10 shows the contrasting business closure outcomes observed between HASCAP and non-HASCAP firms post-PSM. HASCAP firms continue to exhibit a lower closure rate when compared to their non-HASCAP counterparts. Employing the first measure of business closure analysis, the difference in closure rates increased marginally following PSM in the distinction between HASCAP and non-HASCAP firms. Furthermore, applying the second method to quantify business closure disparities has similarly yielded a minor elevation in the distinction between HASCAP and non-HASCAP firms.

For instance, the gap in closure rates one month after intervention, which stood at 0.2 percentage points before PSM, widened to 0.4 percentage points. Similarly, the difference in closure rates after six months of intervention also experienced a slight augmentation after PSM, from the initial 0.6 to 0.7 percentage points. These findings collectively reinforce the notion that HASCAP firms have consistently exhibited a more favorable business closure outlook compared to their observably similar non-HASCAP counterparts.¹⁹

¹⁸ Our refined sample group falls within the common support range and has successfully passed the univariate and multivariate balance test, signifying that the percent bias for all our covariates remained below the 10% threshold. (Please see Table A6 in the Appendix for the balance test results). This result indicates a high degree of comparability between the treated and untreated units. Furthermore, the distribution of overlap between treated and untreated firms is also found to be satisfactory.

¹⁹ The other summary statistics and business characteristics post-PSM are presented in Appendix B.

Table 10: Business closure rates

		Before PSM			After PSM		
		<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Difference (non-HASCAP - HASCAP)</i>	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Difference (non-HASCAP - HASCAP)</i>
1	Close 1 (March to September cohort)	6.4	5.7	0.7	6.8	5.7	1.1
	Close 1 (March to June cohort)	6.4	5.5	0.9	6.8	5.5	1.3
	Close 2 (March to September cohort)	11.1	8.3	2.8	12.0	8.5	3.5
	Close 2 (July to September cohort)	11.1	8.7	2.4	12.0	8.8	3.2
	Close 3 (March to September cohort)	16.7	12.6	4.1	17.3	12.9	4.4
2	Closed after 1 month	1.9	1.7	0.2	2.1	1.7	0.4
	Closed after 3 months	2.1	1.9	0.2	2.2	1.9	0.3
	Closed after 6 months	2.6	2.0	0.6	2.9	2.1	0.8

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

4.2. IMPACT OF HASCAP LOAN USAGE ON BUSINESS EMPLOYMENT GROWTH

Tables 11 and 12 provide a comprehensive overview of the estimated average treatment effects associated with the use of HASCAP loans between March and September 2021. These tables show the quantified results of the impact of HASCAP loans on both business closure and growth in business size.

The results of the estimated average treatment effects for HASCAP recipient businesses, shown in Table 11, provide evidence that is statistically significant at a 5%

level of significance, which suggests that the use of HASCAP loans is associated with an increased in average growth rate in employee size.

More specifically, our findings reveal that HASCAP recipient firms experienced an uptick of 0.22 percentage points in employee size after receiving HASCAP loans. The estimate suggests that, on average, HASCAP firms may have had two fewer employees in total if they had not participated in the program.

Table 11: ATT results for business size growth

Sample	HASCAP	Non-HASCAP	Difference	t-stat
ATT	1.277	1.055	0.223**	3.04

** Indicates 5% level of significance.

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

4.3. IMPACT OF HASCAP LOAN USAGE ON BUSINESS CLOSURE RATE

Table 12 presents findings on business closure rates. Notably, there exists substantial statistical evidence supporting the assertion that the implementation of HASCAP loans has had an impact on reducing closure rates among recipient firms.

Examining the immediate aftermath of HASCAP intervention, our analysis reveals a decline in closure rates. Delving into the temporal dynamics of the closure rate after HASCAP intervention, a compelling pattern emerges. The closure rate analysis conducted six months after the intervention period for all HASCAP companies shows a substantial and statistically significant decline of 5 percentage points. This decline is notably consistent when we examine the closure rates over two distinct three-month intervals: the first spanning from October to December 2021, registering a reduction of 2.5 percentage points, and the subsequent interval spanning from January to March 2022, indicating a reduction of 2.8 percentage points, as illustrated in part 1 of Table 12.

In a macro context the results imply that without HASCAP intervention, approximately 500 fewer HASCAP firms would have remained operational between October and March 2021.

The decrease in closure rates remain consistently lower for HASCAP firms when assessing the closure rates one, three, and six months post-intervention. Within the first month post-intervention, the closure rate decreased by 0.8 percentage points, and this positive trend continued six months following intervention, with a reduction of 0.9 percentage points (Table 12, part 2). These estimates imply that approximately 80–90 fewer HASCAP firms would have remained operational each month without HASCAP. It is worth mentioning that the closure rate observed three months after the intervention exhibited a decline of 0.4 percentage points, although this particular decline is not statistically significant.

Table 12: ATT results for business closure

	HASCAP	Non-HASCAP	Difference	t-stat	
1	Close 1 (October to December)	5.7	8.2	-2.5**	-6.09
	Close 2 (January to March)	8.5	11.3	-2.8**	-5.77
	Close 3 (October to March)	12.9	17.9	-5.0**	-8.53
2	Closed after 1 month	1.7	2.4	-0.8**	-3.31
	Closed after 3 months	1.9	2.3	-0.4	-1.67
	Closed after 6 months	2.1	3.0	-0.9**	-3.63

** Indicates 5% level of significance.

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

The exploration of heterogeneity across different HASCAP cohorts shows the robustness of our findings. Evaluating closure rates at least three months post-intervention—specifically between October and December 2021 for firms that received HASCAP loans between March and June 2021, and between January and March 2022 for firms that received HASCAP loans

between July and September 2021—we observed statistically significant effects.

Closure rates for these cohorts exhibited a difference of 2.1 percentage points and 3.3 percentage points respectively, both in favour of HASCAP businesses, reinforcing the beneficial impact of HASCAP on business closure rates (Refer to Table 13).

Table 13: ATT results for business closure by HASCAP cohorts

March to June cohort only				
	<i>HASCAP</i>	<i>Non-HASCAP</i>	<i>Difference</i>	<i>t-stat</i>
Close 1 (October to December)	5.5	7.6	-2.1**	-4.30
July to September cohort only				
	<i>HASCAP</i>	<i>Non-HASCAP</i>	<i>Difference</i>	<i>t-stat</i>
Close 2 (January to March)	8.8	12.1	-3.3**	-3.82

** Indicates 5% level of significance.

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

In summary, our analysis of closure rates after HASCAP intervention consistently highlights statistically significant declines in the closure rates for recipient firms.

This underscores the pivotal role of HASCAP loans in supporting businesses in remaining open during the pandemic.

5. CONCLUSION

This study provides an evaluation of the treatment effect of HASCAP loans for firms that received these loans between March and September 2021. Using the propensity score matching, we demonstrated that the impact of HASCAP loans on recipient firms is statistically significant, in terms of their post-pandemic employment growth and reduction in business closures.

Our findings underscore the positive impact of HASCAP loans on the performance of recipient businesses. On average, the utilization of HASCAP loans was related to a 0.22 percentage points increase in business growth between February 2021 and February 2022.

Furthermore, the intervention was related to a 5 percentage points decrease in business closure rates six months after the intervention period.

The results indicate that HASCAP helped firms grow and remain open in the wake of the COVID-19 pandemic.

Taken together, the findings offer insights into the importance of targeted support measures for businesses during challenging periods. As policymakers and stakeholders continue to navigate the evolving economic landscape, this study contributes to evaluating and understanding effective strategies to promote business vitality and resilience. Future research could also be undertaken to determine the final cost of the HASCAP program when loans will be repaid over their ten year term.

6. REFERENCES

- Beland, Louis-Philippe, Oluwatobi Fakorede, and Derek Mikola. "Short-term effect of COVID-19 on self-employed workers in Canada". *Canadian Public Policy* 46.S1 (2020): S66–S81.
- Blit, Joel, Mikal Skuterud, and Michael R. Veall. "The pandemic and short-run changes in output, hours worked and labor productivity: Canadian evidence by industry". *International Productivity Monitor* 39 (2020): 16–32.
- Dehejia, Rajeev H., and Sadek Wahba. "Propensity score-matching methods for nonexperimental causal studies". *Review of Economics and Statistics* 84.1 (2002): 151–161.
- Gebrehiwot, Tagel, and Anne van der Veen. "Estimating the impact of a food security program by propensity-score matching." *Journal of Development and Agricultural Economics* 7.1 (2015): 38–47.
- Grieder, Timothy, et al. *COVID-19's impact on the financial health of Canadian businesses: An initial assessment. 2021-8*. Bank of Canada, 2021.
- Gu, Wulong. *Economic Impact of the COVID-19 Pandemic on Canadian Businesses across Firm Size Classes*. Statistics Canada, 2020.
- Ho, Daniel E., et al. "Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference." *Political analysis* 15.3 (2007): 199–236.
- Lemieux, Thomas, et al. "Initial impacts of the COVID-19 pandemic on the Canadian labour market". *Canadian Public Policy* 46.S1 (2020): S55–S65.
- Leuven, Edwin, and Barbara Sianesi. "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing." (2018).
- Lin, Shu, and Haichun Ye. "Does inflation targeting make a difference in developing countries?" *Journal of Development Economics* 89.1 (2009): 118–123.
- Lyming Huang, and Patrice Rivard. "Canada Small Business Financing Program: Economic Impact Analysis – July 2019." Small Business Branch (2019).
- Rubin, Donald B. "Matching to remove bias in observational studies." *Biometrics* (1973): 159–183.
- Rosenbaum, Paul R., and Donald B. Rubin. "The central role of the propensity score in observational studies for causal effects." *Biometrika* 70.1 (1983): 41–55.
- Smart, Michael, et al. "The Employment Effects of a Pandemic Wage Subsidy." (2023).
- Stuart, Elizabeth A. "Matching methods for causal inference: A review and a look forward." *Statistical science: a review journal of the Institute of Mathematical Statistics* 25.1 (2010): 1.
- Tam, Stephanie, Shivani Sood, and Chris Johnston. *Impact of COVID-19 on small businesses in Canada, third quarter 2020*. Statistics Canada, 2020.

7. APPENDICES

Appendix A: Supplementary tables

Table A1: Average growth in size between 2019 and 2020

	Before PSM		After PSM	
	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>
No growth	14.97	42.11	48.47	37.44
Decrease	7.45	17.35	23.57	18.41
Growth	6.78	22.82	22.75	25.29
Growth (>100%)	70.81*	17.73	5.21	18.85
Total	100	100	100	100

* Majority of these are non-employer and one employee firms in 2019 that increased their employee size in 2020.

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table A2: Business age in 2021

Years	Before PSM		After PSM	
	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>
1 to 2	11.48	7.57	3.69	6.02
3 to 4	12.7	19.6	10.50	19.09
5 to 7	15.01	21.4	14.73	21.8
8 to 9	8.17	9.64	8.78	9.66
10 to 14	15.52	16.04	17.69	16.18
15 to 19	11.41	9.68	13.64	9.95
20 to 24	10	6.2	10.27	6.84
25 to 29	10.09	5.55	11.05	5.87
30 to 34	5.57	3.81	9.53	4.26
35 to 39	0.01	0	0.03	0
40+	0.04	0.5	0.11	0.33
Total	100	100	100	100

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table A3: Employee size in 2021

Number of employees	Before PSM		After PSM	
	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>
0	22.75	39.14	14.32	33.71
1 to 2	34.29	13.27	36.48	13.68
3 to 4	13.26	11.42	14.38	12.36
5 to 7	10.15	11.3	11.56	12.31
8 to 9	3.76	4.89	4.44	5.57
10 to 14	5.32	8.06	6.36	9.00
15 to 24	4.34	6.67	5.25	7.56
25 to 49	3.26	3.93	3.93	4.35
50 to 99	1.62	0.99	1.92	1.10
100 to 2,499	1.22	0.33	1.36	0.38
>2,500	0.03	0	0	0
Total	100	100	100	100

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table A4: Employee size in 2022

Number of employees	Before PSM		After PSM	
	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>	<i>Non-HASCAP (%)</i>	<i>HASCAP (%)</i>
0	20.5	34.4	16.51	28.77
1 to 2	34.03	11.24	33.75	11.57
3 to 4	13.3	9.57	13.69	10.14
5 to 7	10.46	10.72	11.29	11.52
8 to 9	4.03	5.37	4.51	5.99
10 to 14	5.77	9.45	6.57	10.38
15 to 24	4.9	9.12	5.67	10.29
25 to 49	3.76	7.08	4.37	8.05
50 to 99	1.86	2.4	2.14	2.59
100 to 2,499	1.36	0.64	1.48	0.7
>2,500	0.04	0	0.01	0
Total	100	100	100	100

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table A5: Regression result

HASCAP	Coefficient	Std. err.	z	P>z	[95% conf. interval]	
Industry						
<i>Agriculture, forestry, fishing and hunting</i>	-	-	-	-	-	-
<i>Utilities, mining, quarrying, oil and gas extraction</i>	-0.047	0.093	-0.500	0.614	-0.228	0.135
<i>Construction</i>	-0.333**	0.075	-4.450	0.000	-0.479	-0.186
<i>Manufacturing</i>	-0.038	0.076	-0.500	0.617	-0.187	0.111
<i>Wholesale trade</i>	-0.026	0.076	-0.340	0.732	-0.175	0.123
<i>Retail trade</i>	-0.095	0.074	-1.270	0.204	-0.241	0.051
<i>Transportation and warehousing</i>	-0.306**	0.077	-4.000	0.000	-0.456	-0.156
<i>Information and cultural industries</i>	0.168**	0.082	2.040	0.041	0.007	0.330
<i>Finance and insurance</i>	-0.192**	0.084	-2.290	0.022	-0.356	-0.027
<i>Real estate and rental, and leasing</i>	0.022	0.077	0.280	0.780	-0.130	0.173
<i>Professional, scientific, and technical services</i>	-0.136*	0.075	-1.820	0.069	-0.282	0.010
<i>Management of companies and enterprises</i>	-0.038	0.130	-0.290	0.770	-0.293	0.217
<i>Administrative and support, waste management and remediation services</i>	0.153**	0.075	2.030	0.042	0.005	0.301
<i>Educational services</i>	0.409**	0.080	5.140	0.000	0.253	0.565
<i>Health care and social assistance</i>	-0.508**	0.078	-6.530	0.000	-0.660	-0.355
<i>Arts, entertainment, and recreation</i>	0.650**	0.076	8.520	0.000	0.500	0.800
<i>Accommodation and food services</i>	0.540**	0.074	7.320	0.000	0.395	0.684
<i>Other services (except public administration)</i>	0.039	0.075	0.520	0.603	-0.108	0.186
Employee size						
<i>0</i>	-	-	-	-	-	-
<i>1 to 2</i>	-0.679**	0.015	-45.460	0.000	-0.708	-0.649
<i>3 to 4</i>	-0.545**	0.016	-33.170	0.000	-0.578	-0.513
<i>5 to 7</i>	-0.552**	0.017	-32.180	0.000	-0.586	-0.519
<i>8 to 9</i>	-0.531**	0.023	-22.690	0.000	-0.577	-0.485
<i>10 to 14</i>	-0.510**	0.020	-25.000	0.000	-0.550	-0.470
<i>15 to 24</i>	-0.530**	0.023	-23.520	0.000	-0.574	-0.486
<i>25 to 49</i>	-0.661**	0.028	-23.820	0.000	-0.716	-0.607
<i>50 to 99</i>	-0.908**	0.045	-20.020	0.000	-0.997	-0.819
<i>100 to 2,499</i>	-1.285**	0.070	-18.330	0.000	-1.422	-1.148
<i>>2,500</i>	0.000	(empty)	-	-	-	-
Age						
<i>1</i>	-	-	-	-	-	-
<i>2</i>	0.630**	0.031	20.400	0.000	0.569	0.690
<i>3</i>	0.526**	0.027	19.590	0.000	0.473	0.579

4	0.452**	0.027	16.670	0.000	0.399	0.505
5	0.431**	0.027	15.780	0.000	0.378	0.485
6	0.423**	0.028	15.200	0.000	0.369	0.478
7	0.356**	0.029	12.290	0.000	0.300	0.413
8	0.336**	0.030	11.280	0.000	0.277	0.394
9	0.294**	0.031	9.520	0.000	0.233	0.354
10	0.252**	0.032	7.800	0.000	0.189	0.316
11	0.291**	0.032	9.010	0.000	0.227	0.354
12	0.295**	0.033	8.840	0.000	0.229	0.360
13	0.210**	0.036	5.870	0.000	0.140	0.280
14	0.259**	0.034	7.690	0.000	0.193	0.325
15	0.202**	0.036	5.640	0.000	0.132	0.272
16 to 19	0.168**	0.026	6.360	0.000	0.116	0.220
20 to 24	0.145**	0.027	5.430	0.000	0.092	0.197
25 to 29	0.046*	0.027	1.700	0.088	-0.007	0.099
30+	-	-	-	-	-	-
Province						
<i>Atlantic</i>	-	-	-	-	-	-
<i>Quebec</i>	0.096**	0.030	3.150	0.002	0.036	0.155
<i>Ontario</i>	0.384**	0.029	13.330	0.000	0.328	0.441
<i>Manitoba</i>	0.108**	0.045	2.370	0.018	0.019	0.197
<i>Saskatchewan</i>	-0.133**	0.052	-2.540	0.011	-0.236	-0.030
<i>Alberta</i>	0.414**	0.030	13.700	0.000	0.355	0.474
<i>British Columbia</i>	0.026	0.032	0.830	0.404	-0.036	0.089
<i>logRevenue₁₉</i>	0.127**	0.005	26.650	0.000	0.118	0.136
<i>TotalDebtRatio₂₀</i>	0.259**	0.006	45.750	0.000	0.248	0.270
Other government intervention	0.773**	0.024	32.640	0.000	0.726	0.819

The number of observations = 718,520

LR $\chi^2(53) = 16,637.44$

Prob > $\chi^2 = 0$

Pseudo $R^2 = 0.190$

Log likelihood = -35,519.86

* Indicates 10% level of significance.

** Indicates 5% level of significance.

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table A6: Balance test results

Variable	Mean			t-test		V(T)/V(C)
	<i>Treated</i>	<i>Control</i>	<i>%bias</i>	<i>t</i>	<i>p>t</i>	
Industry						
<i>Agriculture, forestry, fishing and hunting</i>	-	-	-	-	-	-
<i>Utilities, mining, quarrying, oil and gas extraction</i>	0.00677	0.00627	0.6	0.39	0.694	-
<i>Construction</i>	0.0638	0.06067	1	0.82	0.413	-
<i>Manufacturing</i>	0.04537	0.044	0.6	0.42	0.673	-
<i>Wholesale trade</i>	0.04537	0.04638	-0.5	-0.3	0.762	-
<i>Retail trade</i>	0.091	0.0895	0.5	0.33	0.74	-
<i>Transportation and warehousing</i>	0.0356	0.03685	-0.5	-0.42	0.672	-
<i>Information and cultural industries</i>	0.01567	0.01517	0.4	0.26	0.797	-
<i>Finance and insurance</i>	0.01078	0.00877	1.4	1.29	0.198	-
<i>Real estate and rental, and leasing</i>	0.03184	0.03259	-0.4	-0.27	0.788	-
<i>Professional, scientific, and technical services</i>	0.08185	0.08611	-1.3	-0.97	0.332	-
<i>Management of companies and enterprises</i>	0.00163	0.00188	-0.5	-0.38	0.705	-
<i>Administrative and support, waste management and remediation services</i>	0.06042	0.06029	0.1	0.03	0.973	-
<i>Educational services</i>	0.02833	0.02795	0.3	0.14	0.886	-
<i>Health care and social assistance</i>	0.02143	0.02181	-0.2	-0.16	0.87	-
<i>Arts, entertainment, and recreation</i>	0.06405	0.05691	3.7	1.89	0.058	-
<i>Accommodation and food services</i>	0.319	0.33166	-3.4	-1.71	0.088	-
<i>Other services (except public administration)</i>	0.07333	0.06869	1.8	1.14	0.254	-
Employee size						
<i>0</i>	-	-	-	-	-	-
<i>1 to 2</i>	0.13675	0.1365	0.1	0.05	0.963	-
<i>3 to 4</i>	0.12359	0.12184	0.5	0.34	0.736	-
<i>5 to 7</i>	0.12309	0.13324	-3.1	-1.92	0.055	-
<i>8 to 9</i>	0.05565	0.05829	-1.2	-0.72	0.473	-
<i>10 to 14</i>	0.09	0.0905	-0.2	-0.11	0.912	-
<i>15 to 24</i>	0.07558	0.07245	1.3	0.76	0.45	-
<i>25 to 49</i>	0.04349	0.04337	0.1	0.04	0.969	-
<i>50 to 99</i>	0.01103	0.01316	-1.7	-1.23	0.218	-
<i>100 to 2,499</i>	0.00376	0.00539	-1.8	-1.53	0.127	-
<i>>2,500</i>	-	-	-	-	-	-
<i>logRevenue₁₉</i>	13.387	13.35	2.4	1.6	0.109	1.09*
<i>TotalDebtRatio₂₀</i>	1.2302	1.2692	-5.2	-2.62	0.009	0.64*

Age						
1	-	-	-	-	-	-
2	0.06017	0.06167	-0.7	-0.4	0.691	-
3	0.0999	0.09802	0.7	0.4	0.691	-
4	0.091	0.08649	1.8	1	0.316	-
5	0.08423	0.08636	-0.8	-0.48	0.63	-
6	0.07471	0.07947	-2	-1.13	0.259	-
7	0.05904	0.05666	1.1	0.64	0.519	-
8	0.05327	0.05766	-2	-1.21	0.226	-
9	0.04337	0.04262	0.4	0.23	0.815	-
10	0.03597	0.03823	-1.2	-0.75	0.451	-
11	0.0371	0.03522	1	0.64	0.525	-
12	0.03359	0.03058	1.7	1.08	0.281	-
13	0.02469	0.02557	-0.5	-0.35	0.723	-
14	0.03046	0.03372	-1.8	-1.17	0.243	-
15	0.02457	0.02607	-0.9	-0.6	0.545	-
16 to 19	0.07496	0.07333	0.6	0.39	0.694	-
20 to 24	0.06844	0.06518	1.2	0.82	0.41	-
25 to 29	0.05866	0.05916	-0.2	-0.13	0.893	-
30+	0.04588	0.044	0.7	0.57	0.567	-
Province						
Atlantic	-	-	-	-	-	-
Quebec	0.15142	0.14728	1.1	0.73	0.464	-
Ontario	0.52294	0.52469	-0.4	-0.22	0.824	-
Manitoba	0.01604	0.01655	-0.3	-0.25	0.803	-
Saskatchewan	0.00902	0.01003	-0.8	-0.65	0.514	-
Alberta	0.18902	0.18075	2.2	1.35	0.178	-
British Columbia	0.08711	0.09087	-1.1	-0.83	0.404	-
Other government intervention	0.97067	0.97456	-1.2	-1.5	0.133	-

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Appendix B: Summary statistics (post PSM)

Table B1: Employee size, revenue, and debt ratio statistics of businesses (after PSM)

	Non-HASCAP	HASCAP
	<i>Mean</i>	<i>Mean</i>
Average employee size (2019)	11.82	13.50
Average employee size (2020)	10.36	9.25
Revenue (2019)	\$3,529,988.00	\$1,866,936.00
Revenue (2020)	\$3,370,112.00	\$1,131,248.00
Total debt ratio for 2020	0.70	1.23

Source: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table B2: Percentage use of other COVID-19 government support programs (after PSM)

	Non-HASCAP (%)	HASCAP (%)
CEWS	44.7	80.6
CEBA	65.4	88.6
CECRA	7.2	43.8
Any one of these government interventions	74.2	97.1

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.

Table B3: Characteristics of HASCAP and Non-HASCAP recipient businesses (after PSM)

	Non-HASCAP	HASCAP
Age		
<i>Average age in 2021</i>	14.9	11.1
Province (%)		
<i>Atlantic</i>	4.9	2.4
<i>Quebec</i>	21.9	15.1
<i>Ontario</i>	37.8	52.3
<i>Manitoba</i>	2.7	1.6
<i>Saskatchewan</i>	2.5	0.9
<i>Alberta</i>	14.0	18.9
<i>British-Colombia</i>	16.2	8.7

Industry (%)		
<i>Agriculture, forestry, fishing, and hunting</i>	0.6	0.4
<i>Utilities, mining, quarrying, and oil and gas extraction</i>	0.8	0.7
<i>Construction</i>	15	6.4
<i>Manufacturing</i>	5.3	4.5
<i>Wholesale trade</i>	4.9	4.5
<i>Retail trade</i>	10	9.1
<i>Transportation and warehousing</i>	7.5	3.6
<i>Information and cultural industries</i>	1.3	1.6
<i>Finance and insurance</i>	2.9	1.1
<i>Real estate and rental and leasing</i>	4.4	3.2
<i>Professional, scientific, and technical services</i>	15.5	8.2
<i>Management of companies and enterprises</i>	0.4	0.2
<i>Administrative and support, waste management and remediation services</i>	4.5	6.0
<i>Educational services</i>	1.0	2.8
<i>Health care and social assistance</i>	11.1	2.1
<i>Arts, entertainment, and recreation</i>	1.4	6.4
<i>Accommodation and food services</i>	6.6	31.9
<i>Other services (except public administration)</i>	6.8	7.3
Total	100	100

Sources: Statistics Canada, NALMF; Statistics Canada, Monthly Business Closures and Openings; and data from HASCAP program.