



Firm Size and Payroll Adjustments: Exploring the Behaviour of Technology Firms During COVID-19

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Introduction and Summary⁺

The COVID-19 pandemic has altered the economic landscape of Canada. On March 18, 2020 the government of Canada unveiled ‘Canada’s COVID-19 Economic Response Plan’, a set of measures meant to support Canadians and businesses. The government has since updated and amended many of the policy supports to better assist Canadians during this unprecedented crisis.¹

A Munk School policy brief, co-authored by Steven Denney with economist Viet Vu, explored the opinion of Canadian technology scale-ups regarding their top business concerns and what they thought about the federal supports being offered.² The brief found evidence that scale-ups were not as concerned about payroll as small firms (or start-ups) might be, but were more concerned with revenue flows and program eligibility. The question we are left with, then, is whether large firms behave differently than small ones in a time of crisis.

Using a recent Council of Canadian Innovators (CCI) survey of CEOs from Canadian headquartered technology firms,³ this policy brief determines whether payroll decisions differ by size of firm, with a special focus on scale-up firms (firms with 50+ employees). Based on this survey data, CCI found that almost no technology firms would qualify for the Canada Emergency Wage Subsidy (CEWS) at the time of the survey. The federal government has since updated eligibility requirements, making it easier to qualify for support.

Using the data to address a different question, this brief provides evidence that firms who have grown past the threshold of 49 employees respond differently to the economic challenges posed by COVID-19 and may continue to do so. The differences in opinion by firm type/size underscores the point that not all technology firms will behave and react the same to the crisis or policy supports. Among those sampled, the analysis finds medium-size firms are those most vulnerable to making payroll adjustments. However, scale-ups are not similarly exposed. Large scale-ups, in particular, are more likely to keep people on payroll going forward, and both small and large scale-ups are less likely than medium-size firms to have already made payroll adjustments and expect further employment cuts.

The evidence presented in this brief adds to a new and growing body of work on the importance of differentiating and specifically understanding and supporting scale-ups in Canada. The author is careful in making any bold or definitive conclusions based on this data, but there is evidence here – and elsewhere – that scale-ups are in a relatively better position to weather the COVID-19 crisis, and, as such, deserve government support through targeted intervention.

⁺ This policy brief is part of “The Scale-up Challenge for Canada: Obstacles to High-Growth Technology-based Firms and the Policy Response,” a Mitacs Accelerate Grant research project, initiated and funded by Delvinia and managed through the Innovation Policy Lab, at the Munk School of Global Affairs and Public Policy, University of Toronto.

¹ Read about the plan here: <https://www.canada.ca/en/department-finance/economic-response-plan.html>.

² Steven Denney and Viet Vu, “The COVID-19 Crisis and Policy Preferences of Canadian Technology Scale-ups,” Innovation Policy Lab, Munk School of Global Affairs and Public Policy, March 30, 2020, <https://munkschool.utoronto.ca/ipl/publication/the-covid-19-crisis-and-policy-preferences-of-canadian-technology-scale-ups/>.

³ The original survey was used to determine wage subsidy eligibility among Canadian technology firms. See: Isabelle Kirkwood, “Survey finds 82 percent of tech CEOs plan to make layoffs after being left out of federal wage subsidy,” *Betakit*, April 6, 2020, <https://betakit.com/survey-finds-82-percent-of-tech-ceos-plan-to-make-layoffs-after-being-left-out-of-federal-wage-subsidy/>.

Findings

Two questions from the survey are analyzed using 525 responses from Canadian headquartered technology firms. The questions and possible answers read as follows:

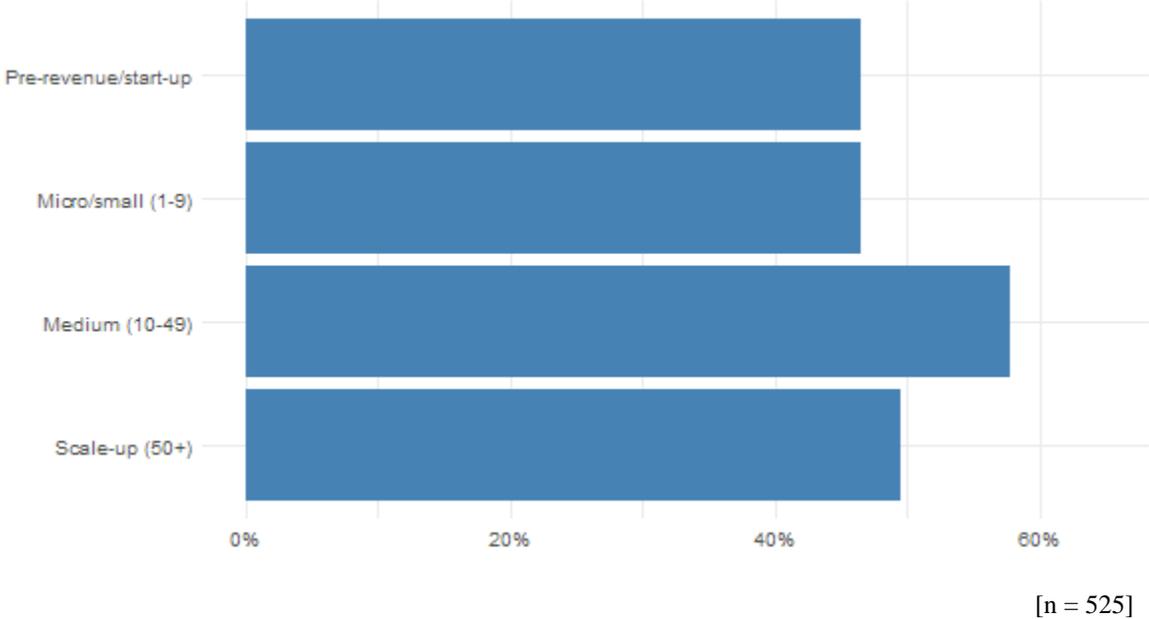
1. Since the pandemic began, have you adjusted payroll? Respondents answered ‘yes’ or ‘no’.
2. Do you foresee potential future layoffs? Respondents answered ‘yes’, ‘no’, or ‘unsure’.

The following sections explore affirmative responses by firm sizes for each question and then for those who answered in the affirmative for *both questions*.⁴ Percentages are rounded to the nearest whole percentage, unless otherwise noted.

Immediate payroll adjustments

First, we consider whether respondents at the time of the survey reported payroll adjustments since the pandemic began. Among all firms, 50% report having made adjustments, but there is variation by firm size. Figure 1 shows that 46% of respondents from pre-revenue firms and micro/small firms reported payroll adjustments and 58% from medium-size firms did the same. Notably, the percentage drops to 49% for threshold firms.

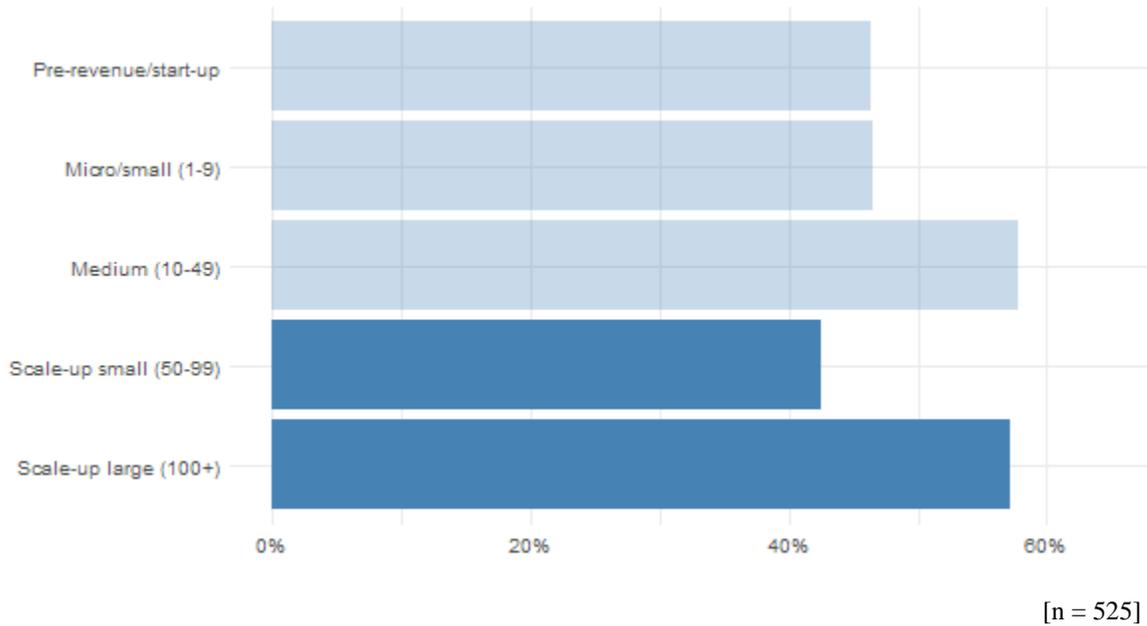
Figure 1: Percentage of firms who reported payroll adjustments since pandemic began
Firm size by employment



⁴ Respondents were given the ability to go beyond simple ‘yes’, ‘no’, or ‘unsure’ answers, although the vast majority provided simple answers. Where longer answers were provided, the researcher coded them according to the answers described here. NAs were minimal (n=2 for question one, and n=7 for question two).

Often, the 100-employee marker is seen as a cutoff point for business size.⁵ If we split up scale-up firms by size, the outcome changes. Figure 2 shows the same data, but with two threshold firm categories (50-99 and 100+ employees). Notably, the percentage drops to 43% for smaller threshold firms. Respondents at firms with 100+ employees, however, answered similarly to those from medium-sized firms. Based on the sample, smaller threshold firms are those who, at the time of the survey, were least likely to have made payroll adjustments.

Figure 2: Percentage of firms who reported payroll adjustments since pandemic began
Firm size by employment (with two scale-up categories)



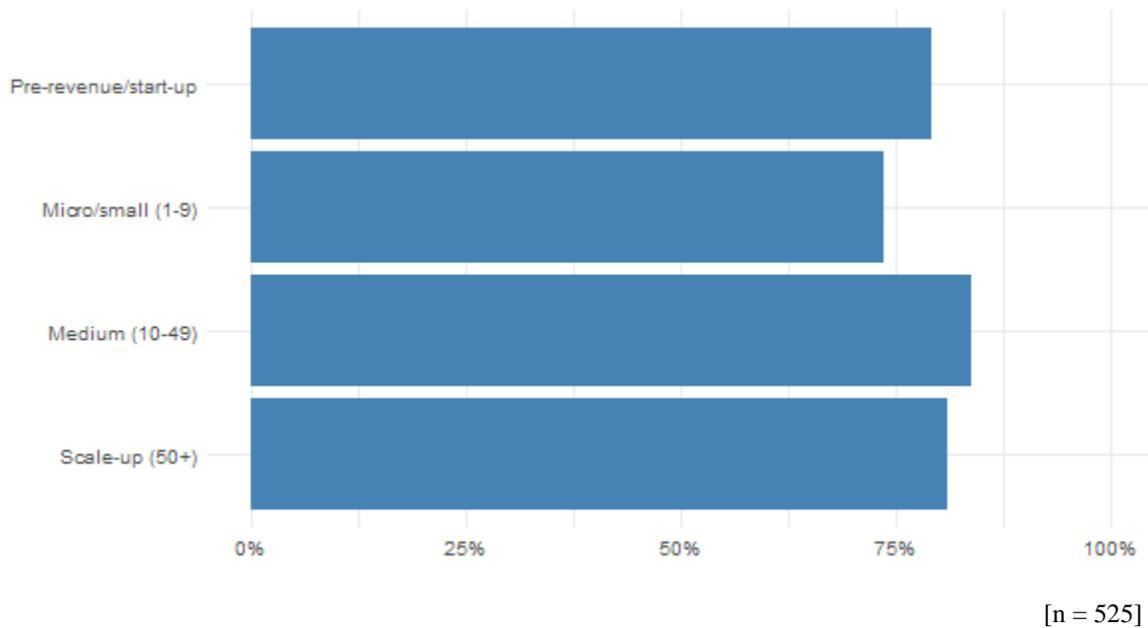
What do the immediate payroll adjustment findings mean? Without additional information, it's hard to say exactly, but based on the survey data, it appears that firms above the range of “small” (10+ employees) are more likely than smaller firms or start-ups to adjust their payroll. This is not surprising, as these are likely growing companies, and making cuts to staff (pay or employment) is to be expected. What's notable is that threshold firms report making less cuts. This may be because they have market fit, staying power, greater revenue, and/or the organizational capacity to better manage their way through the crisis.

⁵ Firm-level analysis in Canada sometimes identifies firms with more than 99 employees (but less than 500) as medium-size. See, for example: “Key Small Business Statistics – January 2019,” Innovation, Science and Economic Development Canada, 2019, https://www.ic.gc.ca/eic/site/061.nsf/eng/h_03090.html. Conventional categories for firm sizes are *not* used here, but there is a case to be made for comparing scale-ups who have crossed the 100-employee threshold to those who have not.

Future payroll adjustments

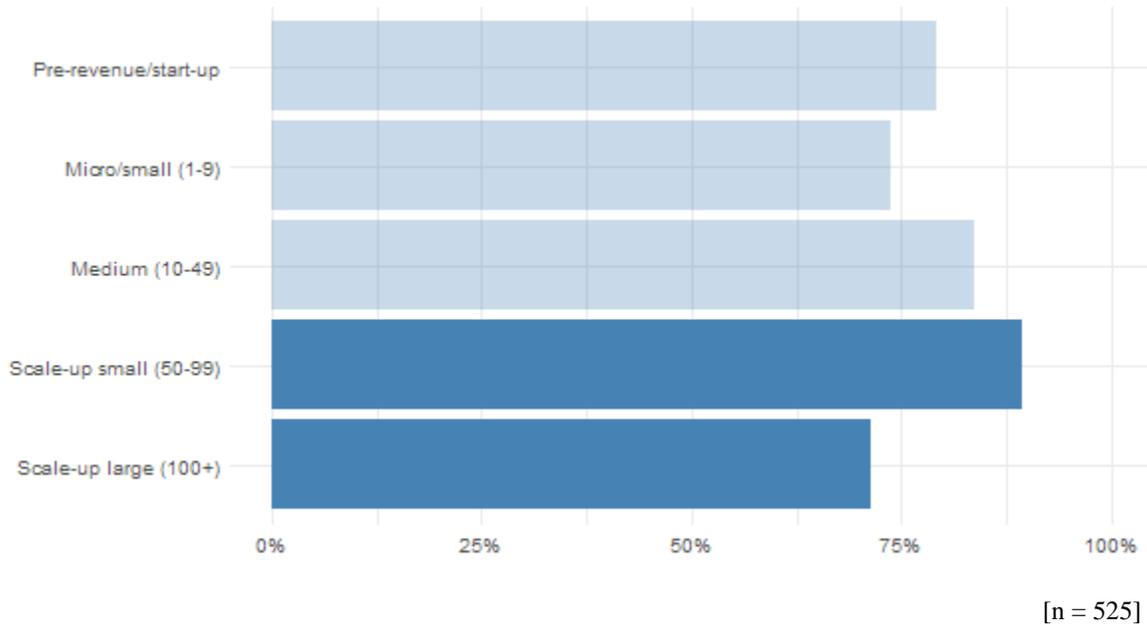
Second, we determine whether firms foresee making future layoffs. Overall, 80% of respondents said they intend to make layoffs in the future, but, like immediate payroll adjustments, responses vary by firm size (Figure 2). Between 79-84% of CEOs from start-ups, medium-size, and threshold firms said they intend to downsize (Figure 3). A significantly fewer number of CEOs from micro-small firms intend to make further cuts to staff.

Figure 3: Percentage of firms who say they anticipate future layoffs
Firm size by employment



If threshold firms are split into two categories (Figure 4), larger scale-ups firms (100+ employees) are more likely to maintain payroll as is – 71% said they do not anticipate making further layoffs. This is significantly lower than smaller threshold firms (89%). The difference in opinion by scale-up size isn't surprising. Larger firms can be expected to carry on as is for longer, whereas smaller threshold firms will likely need to make additional cuts to payroll.

Figure 4: Percentage of firms who say they anticipate future layoffs
Firm size by employment (with two scale-up categories)



Immediate and future adjustments

Lastly, we look at how many respondents said they both already made payroll adjustments *and* anticipate making further employment cuts. One possible interpretation of this findings is that shows which firms most vulnerable to the crisis, although without more data this interpretation should be made with care.

Among all respondents from Canadian technology firms, 41% answered in the affirmative for both questions. But, again, there is variation by firm size. Figure 5 shows that 51% of CEOs from medium-size firms answered in the affirmative, 10 percentage points higher than the overall average and significantly higher than all other firms. Scale-ups are right at the average (40.4%, to be exact). Figure 6 shows that the size of the scale-ups doesn't matter.

Figure 5: Percentage of firms who have made payroll changes and anticipate further cuts
Firm size by employment

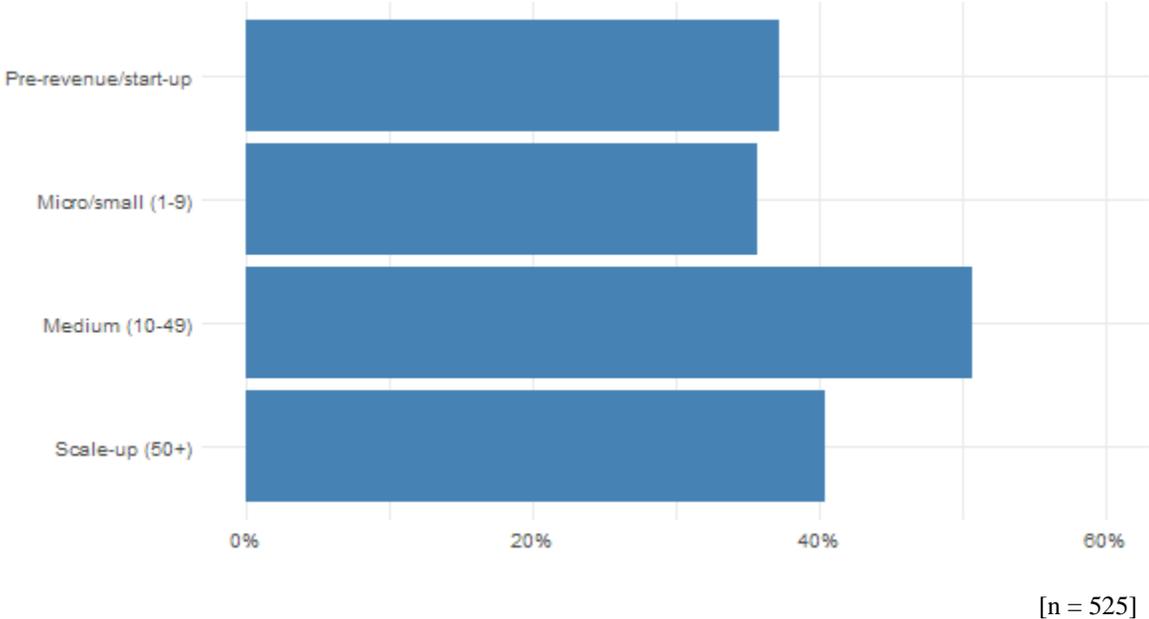
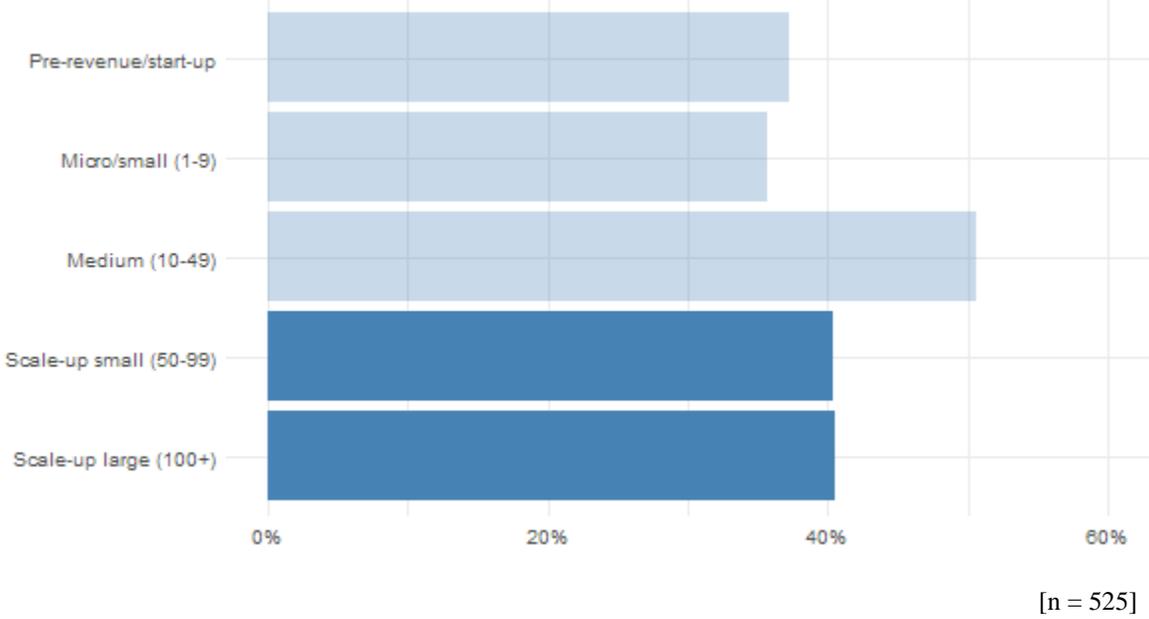


Figure 6: Percentage of firms who have made payroll changes and anticipate further cuts
Firm size by employment (with two scale-up categories)



Conclusion

The significance of the findings for additional layoffs is, first and foremost, that a vast majority of all technology firms in Canada intend to make further cuts, so employment subsidies and additional financial relief are warranted. This was precisely the motivation behind the Council of Canadian Innovator's call on the federal government to expand wage subsidy eligibility from being strictly about revenue decrease year-over-year, which it has since done. "The intention of the wage subsidy program is to save Canadian businesses from making drastic job cuts or going bankrupt," said John Ruffolo, CCI vice-chairman, in a statement to *Betakit*.⁶ However, the variation by firm type/size, albeit sometimes small, highlights the need to differentiate our understanding of how technology firms will respond to the COVID-19 crisis and the accompanying business challenges.

Policy Implications

The conversation in Canada surrounding innovation and technology tends to focus on start-ups and the ecosystems needed to support them. It is important to have a robust start-up ecosystem that supports firm entries and exits, but there is still far too little discourse on and understanding of technology scale-ups and the ecosystems needed to support this highly impactful subset of firms. The main takeaway from the analysis of the survey data is that not all firms should be viewed or understood equally.

An important distinction, the wants/needs of scale-ups are typically going to be different than technology start-ups. Start-ups are new market entries either bootstrapped to grow, or, if financed, grow with disregard for profitability. Scale-ups, on the other hand, are market tested and validated firms with sufficient access to financing that are often focused on R&D (especially technology firms), commercializing ideas, and market expansion. It is important for policy supports and interventions to take this difference into account.

⁶ Meagan Simpson, "CCI tells feds emergency wage subsidy must be expanded to support Canadian tech," *Betakit*, April 2, 2020, <https://betakit.com/cci-tells-feds-emergency-wage-subsidy-must-be-expanded-to-support-canadian-tech/>.

Why are (Technology) Scale-ups Important?

Scale-ups are by definition businesses that have proven market viability. Labelled ‘threshold firms’ by the Science Council of Canada in the 1980s,⁷ and often referred to as ‘high-growth’ firms,⁸ scale-ups are enterprises defined by significant gains in employment (or turnover) over time.⁹ Firms within the 90th percentile of the growth distribution (or higher), research finds these firms not only have a disproportionate impact on job creation and revenue generation, but also productivity gains.¹⁰

Accordingly, there is an interest in ensuring scale-up firms can survive through the current crisis and that support is available to minimize long-term economic damage to these firms. Ongoing research by Steven Denney and Viet Vu, funded by Delvinia with support from Mitacs, using business microdata that covers the entire universe of firms, finds definitive evidence that scale-ups are both rare (3-5% of all firms in Canada), and that, compared to non-scale-ups, have a disproportionate impact on revenue generation and job creation, innovate more, and are more productive (especially technology scale-ups).¹¹

⁷ Guy P.F. Steed, *Threshold Firms: Backing Canada’s Winners* (Science Council of Canada, 1982).

⁸ Eurostat and OECD, *Eurostat-OECD Manual on Business Demography Statistics* (European Communities/OECD, 2008), 1–5; and Arnobio Morelix, E.J. Reedy, and Joshua Russell, *The Kauffman Index of Growth Entrepreneurship* (Kauffman Foundation, 2016).

⁹ The OECD (2007) defines high-growth firms as “All enterprises with average annualized growth [in revenue or turnover] greater than 20 percent per annum, over a three-year period” and with at least 10 employees in the first year of observation. Eurostat and OECD, *Manual on Business Demography Statistics*, 62. In this report we use a modified version of the OECD’s revenue-based definition.

¹⁰ For employment and revenue impact, see: John Haltiwanger, Ron S. Jarmin, and Javier Miranda, “Who Creates Jobs? Small versus Large versus Young,” *Review of Economics and Statistics* 95, no. 2 (2013): 347–61; Patrice Rivard, *The Contribution to Canadian Net Employment Change by High-Growth Firms* (Innovation, Science and Economic Development Canada, December 2017); and Viet Vu and Annalise Huynh, *Scale-up Activity in Ontario* (Brookfield Institute, 2019). For productivity impact, see: Jun Du and Yama Temouri, “High-growth firms and productivity: evidence from the United Kingdom,” *Small Business Economics* 44 (2015): 123-143; and John Haltiwanger, Ron S. Jarmin, Robert Kulick, and Javier Miranda, “High Growth Young Firms: Contribution to Job, Output, and Productivity Growth,” in *Measuring Entrepreneurial Businesses: Current Knowledge and Challenges*, John Haltiwanger, Erik Hurst, Javier Miranda, and Antoinette Schoar (eds.) (University of Chicago Press, 2017), 11-62.

¹¹ These insights will be further explored in “Scale-up Activity in Canada,” a report by Steven Denney and Viet Vu (forthcoming 2020).

Methodology

Between April 1-5, 2020, the Council of Canadian Innovators polled 699 CEOs from companies in Canada using their network of industry contacts and communication channels (e.g., mailing list, Slack). Respondents were asked to provide basic company information, including where they are headquartered, whether they are a technology company, their revenue status, and employment count. They were then asked questions about current and future payroll decisions, in addition to their opinion about the federal wage subsidy support, which still had an eligibility condition of 30% revenue loss, year-over-year. Only Canadian headquartered technology firms who provided employment data were analyzed in this policy brief (n=527).

Firm Characteristics

Firms were categorized by type and size. Pre-revenue firms were counted as start-ups, and revenue-generating firms were categorized by employment size.¹² Revenue-generating sole proprietorships (n=2) were excluded from analysis. This report counts firms with 50 employees or more as “threshold” firms. Companies with greater than 49 employees are extremely rare. In 2017, 95% of all firms in Canada employed between 1 and 49 people.¹³

Table 1 reports the distribution of firms by type/size.

Table 1: Sample overview

<i>Firm type/size</i>	<i>N</i>	<i>%</i>
Pre-revenue/start-up	153	29
Micro/small (1-9 employees)	129	25
Medium (10-49)	154	29
Scale-up small (50-99)	47	9
Scale-up large (100+)	42	8
TOTAL	525	100

¹² On average, pre-revenue/start-ups employed 11 people.

¹³ “Key Small Business Statistics – January 2019,” Innovation, Science and Economic Development Canada, 2019, https://www.ic.gc.ca/eic/site/061.nsf/eng/h_03090.html.

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About the Innovation Policy Lab

The Innovation Policy Lab (IPL) at the Munk School of Global Affairs and Public Policy is committed to applying novel methods and disciplines to the study and teaching of innovation and its impact on economic opportunity and society. The IPL focuses on core questions in a number of areas including innovation and growth, innovation and inequality, globalization and innovation, social innovation, new technologies and their impact on society, innovation in traditional industries, and arts and innovation. Since our aim is also to effect change, we pay particular attention to the role of public policy in nurturing innovation, while at the same time enhancing its positive impacts on society and limiting its negative consequences.