Methodology Report

2017 Survey on Financing and Growth of Small and Medium Enterprises

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1 Background Information

The objective of this survey was to collect general characteristics on small- and medium-sized businesses and their financing activities. It collected information on the types of debt, lease and equity financing that small and medium enterprises (SMEs) rely on. Furthermore, it collected information on any recent attempts to obtain new financing. It also collected additional information about circumstances that affect the way these businesses operate.

Statistics Canada conducted this survey on behalf of a consortium led by Innovation, Science and Economic Development Canada. The data obtained from this survey will be used by both the public and private sectors. Innovation, Science and Economic Development Canada will use this information to study the availability of financing to SMEs and to recommend policy changes to assist businesses. Other government departments will use this information to develop national and regional programs and for policy planning. Businesses will use this information for market analysis or to compare the performance of their firm with the performance of firms of a similar size within the same industry. Industry associations will use the information for industry performance measurement and for market development, and suppliers of financing for SMEs will use the information to determine gaps in their services.

2 Target populations

The target population comprises all enterprises that have between 1 and 499 employees and a revenue of at least $30,000. The following enterprises are excluded from the target population:

1- Joint ventures
2- Non-profit enterprises
3- Enterprises that are not of interest according to the North American Industry Classification System (NAICS). They include utilities (22), finance and insurance (52), management of companies and enterprises (55), educational services (61), public administration (91), automotive equipment rental and leasing (5321), commercial and industrial machinery and equipment rental and leasing (5324), out-patient care centres (6214), medical and diagnostic laboratories (6215), other ambulatory health care services (6219), general medical and surgical hospitals (6221), psychiatric and substance abuse hospitals (6222), specialty (except psychiatric and substance abuse) hospitals (6223), community food and housing, and emergency and other relief services (6242) and private households (814110).

In addition to this large population, there is particular interest in specific sub-populations, as follows:

- Information and communications technologies (ICT).
- Co-operatives (co-ops)
- Canadian Small Business Financing (CSBF) Program units
- Units that have signed contracts with Public Services and Procurement Canada (PSPC)
- Social enterprises identified by Employment and Social Development Canada (ESDC)
- Business Development Bank of Canada (BDC) units
- Clean technology units

For the ICT sub-population, units are defined as enterprises in the industry groups (4-digit NAICS) listed in Table A1 in Appendix A.

With regard to the other sub-populations, Statistics Canada does not have classifications to identify their units. As we will see in the subsequent sections, units could only be identified after the lists of units received had been matched to the Business Register (BR).

The rest of this document will distinguish between the main population and the seven sub-populations.

3 Sample design

3.1 Sampling frames

A survey's sampling frame is the list of units that correspond to the target survey population. It contains contact information for all elements in the frame as well as the stratification variables e.g. employment and industry. The statistical unit for the survey is the enterprise, as defined in the BR.

In this section, the creation of the sampling frame associated with each target population is described. The frame for the main (or base) population is constructed by selecting from the BR all enterprises that have between 1 and 499 employees and a minimum gross revenue of $30,000. A number of enterprises are excluded from the population, as described in the section on the definition of populations of interest. The frame for the main population comprises 840,989 enterprises.

The frame for the ICT sub-population, as described in the previous section, includes 34,751 businesses.

For the other sub-populations, sampling frames were essentially created in two steps. In the first step, lists of businesses provided to Statistics Canada were matched to the BR. The Centre for Special Business Projects (CSBP) carried out the matching using the business's Business Number (BN), legal name, postal code and address. Once files had been matched, the second step entails creating a sampling frame for each population. The same exclusions were applied to

the main population and the sub-populations with two exceptions. First, for the CSBFP population, units currently deemed "inactive" in the BR or active units for which the BR has yet to define key fields, such as industry classification, could be included in the frame. The concept of inactivity refers to businesses that very recently received a business number and therefore, are not yet listed as active. Failure to include these units could give rise to undercoverage of the population. However, only the collection results can determine the number of in-scope units and assess the size of that particular population. Secondly, non-profit enterprises were not excluded for the ESDC sub-population which covers registered charities and non-profit enterprises.

3.2 Estimating sample sizes and allocation

The main population was stratified by age of business, enterprise size, industry and geography. Each business was defined as either a start-up which had been in existence for less than two years or as a member of the general population which had been in existence for at least two years. The size of an enterprise was defined by the number of employees. For the general population, four size categories were created: 1 to 4 employees; 5 to 19 employees; 20 to 99 employees; and 100 to 499 employees. Within Quebec, the size category for 100 to 499 employees was further divided into 100 to 249 employees and 250 to 499 employees. For start-ups, two size categories were created: 1 to 4 employees and at least 5 employees. The population was further stratified into 10 economic categories, listed in Table A2 in Appendix A. These categories were derived based on industry sectors (2-digit NAICS). Finally, stratification by geography was considered at two levels

- Regional level: Atlantic Canada; Quebec; Ontario; Manitoba and Saskatchewan; Alberta; and British Columbia and the territories
- Sub-regional level: Atlantic Canada broken down into rural and urban; Ontario broken down into 14 census metropolitan areas (CMA) (12 southern and 2 northern) along with each of the southern and northern components not already covered.

For the general population the most detailed level of geographical stratification was used but due to small population counts, only regional level geographical stratification was considered for start-ups. In terms of classifying rural units, these units were identified based on postal code, as was done in previous iterations of the survey. In Ontario, units were classified as southern or northern based on census division as shown in Table A3.

There was no stratification for the co-op, PSPC, BDC and clean technology sub-populations. Social enterprises were stratified into registered charities and non-profit enterprises. The ICT sub-population was stratified into units in Quebec and units in the rest of Canada.

For the CSBF population, the sampling frame was stratified in three groups of units. The first group was "active" enterprises for which information on industry and employment was available in the BR. The second group includes enterprises for which information on employment was

available but that had just received a Business Number (not yet active) or that were active but for which information on industry was not available. The third and final group was composed of units for which information on employment was not available.

In the main population, domains were defined for each of the categories of employment size, industry and regional level geography. Within each category, the target maximum standard error (SE) for proportion estimates was set at 2.7%. The target maximum SE for start-ups at the national-level was set at 2.5%.

Another set of domains at the sub-regional level in Atlantic Canada, Quebec and Ontario were defined. For Atlantic Canada, an additional domain covering enterprises within rural areas with a target maximum SE of 3% was added. Within Quebec, three types of domains were specified

- 5 size categories, each with a target maximum SE of 5%
- Start-ups with a target maximum SE of 5%
- ICT sub-population with a target maximum SE of 5%

Finally, within Ontario, three types of domains were specified

- 14 CMAs (12 southern and 2 northern), each with a target maximum SE of 6.5%
- Northern Ontario (including the 2 northern CMAs) with a target maximum SE of 3.5%
- Industry and size with a target maximum SE of 6.5% within each industry and employment size group combination

Overall, the sample design for the main population has to satisfy precision requirements for 83 overlapping domains.

In regards to the special populations, precision targets for ICT, co-ops, CSBF, PSPC, BDC and clean technology were set at 4%, 2.7%, 1.9%, 3%, 2% and 3%, respectively. For ESDC units, precision targets for registered charities and non-profit enterprises were set at 2%.

At the time of the Project Proposal, the process of creating the sub-population sampling frames was on-going and, therefore, exact population sizes were not available. The required sample sizes for the sub-populations (excluding ICT) were calculated based on preliminary estimates of the population sizes and the above precision targets. In the final samples selected from the BR population as of December 31st 2017, the sample sizes in the proposal were maintained except for the ESDC sub-population. In this case, a census was taken due the small population size. As shown in the subsequent section, the expected SE were calculated based on the final population sizes to assess the impact of the changes in population sizes.

The aim of the allocation strategy for the main population was to minimize the overall sample size while meeting the precision requirements of all of the domains of interest. The procedure given by Demnati and Turmelle (2011) for Statistics Canada's Integrated Business Statistics Program was followed.

In this procedure, a value of 50% was assumed for the proportions of interest to ensure the sampling variance is at a maximum. In other words, if the desire is to estimate the proportion of

female business owners, then for the purposes of estimating sample size, the proportion of female business owners is set at 50%. The 50% value provides the most conservative sample size since it is the greatest sample size that can be obtained from all possible values of the proportion.

A non-linear programming solution was used to calculate the sample sizes required to simultaneously minimize the overall sample size and meet or exceed the precision targets for all of the targeted domain in the main population. The resulting values were inflated to account for an expected response rate of 35% for start-ups and 40% for the general population. As well, a minimum stratum sample size requirement of 10 units for the majority of strata was imposed. A lower minimum stratum sample size of 5 units was set for strata defined at the sub-regional level within Atlantic Canada and Ontario (except Southern Ontario) and strata with 250 to 499 employees within Quebec. For a few strata, this increase is not possible because it would exceed the population size and, therefore, all the units were taken. Additionally, a minimum sampling fraction of 0.55% within each stratum was imposed. The expected standard error for each domain was calculated (using the formula for the sampling variance (V_d) in Appendix B where stratum-level sample sizes (n_h) incorporate the expected response rate). If the expected standard error fell short of the precision target for a given domain then the contributing strata were all set as take-all. As a result for every domain, either a census was taken or the expected standard error met the precision targets. In the case where a census is taken, the quality targets may not be met. This was the case for only one Ontario-level industry and size domain in the main population as well as registered charities and non-profit enterprises in the ESDC sub-population. The details of the sample size allocation procedure are provided in Appendix B.

The total sample size for the main population was 17,323 enterprises. Table 1 below presents a summary of the sample sizes and expected precision for the national and regional level domains in the main population. Due to the collapsing of strata for employment size within start-ups, some domains are defined only for the general population, as indicated below. Table 2 presents a summary of the sample sizes and expected precision for the additional geographic domains in the main population; these domains are defined only for the general population.

Table 1: Sample sizes for national and regional level domains in the main population

Category	Population	Sample	Expected SE
Canada	**840,989**	**17,323**	
Age of business			
General population	810,585	15,485	
Start-ups	30,404	1,838	2.1%
Employment category			
1 to 4	487,166	7,379	1.2%
5 to 19*	253,047	4,187	1.5%
20 to 99*	79,213	2,681	2.1%
100 to 499*	11,061	2,318	2.2%

Region			
Atlantic	50,417	1,721	2.4%
Quebec	179,445	2,759	2.0%
Ontario	310,582	8,429	1.3%
Manitoba and Saskatchewan	52,334	1,296	2.4%
Alberta	115,525	1,510	2.5%
B.C. and territories	132,686	1,608	2.4%
Industry			
Accommodations	67,670	1,646	2.4%
Construction	134,091	1,998	2.4%
Manufacturing	43,936	1,541	2.4%
Other services	57,812	1,491	2.5%
Primary	51,515	1,699	2.5%
Professional	118,667	1,804	2.5%
Retail	93,696	1,775	2.5%
Transportation	57,228	1,631	2.5%
Wholesale	42,272	1,483	2.5%
All other	174,102	2,255	2.2%

*Domain defined for general population only

Additional estimates will be produced for Knowledge-based Industries (KBI) and for Tourism Industries, but no special processing was done. In other words, there were no precision targets to be met for these sub-groups so the required sample sizes were not estimated for these specific sub-groups. Of the 840,989 enterprises in the sample frame, 22,767 enterprises were KBI and 80,995 enterprises were in Tourism Industries. The sample selected contained 613 KBI enterprises and 2,542 enterprises in Tourism Industries. See Tables A4 and A5 in Appendix A for the definitions for KBI and for Tourism Industries.

For the main population, a key notion is the number of units to be collected. This notion refers to the fact that some sampled units cannot be collected (because of response burden considerations, for example). Additionally, some sampled units in the main population were also selected in the sample for one of the sub-populations. In this case, the unit was sent a single questionnaire but contributes to the estimates for all relevant populations. The sample selected for the main population contained 162 enterprises that were sampled for one of the sub-populations. Of the 17,323 sampled enterprises, 17,107 enterprises contributing to the main population only are to be collected (this takes into account units relieved from collection due to excessive response burden).

Table 2: Sample sizes for additional geographic domains in the main population

Region	Population	Sample	Expected SE
Atlantic			
Rural Atlantic	12,291	849	2.7%
Ontario			
Northern Ontario	16,565	909	3.2%
Sudbury (580)	2,796	241	5.8%
Thunder Bay (595)	2,325	233	5.8%
Ottawa–Gatineau (505)	23,281	559	5.1%
Kingston (521)	2,986	240	5.8%
Peterborough (529)	2,174	244	5.7%
Oshawa (532)	5,265	250	5.9%
Hamilton (537)	14,914	351	6.1%
St. Catharines–Niagara (539)	7,683	284	5.9%
Kitchener (541)	10,571	298	5.9%
Brantford (543)	2,753	234	5.7%
Guelph (550)	3,160	235	5.9%
London (555)	9,210	275	6.1%
Windsor (559)	6,095	251	5.9%
Barrie (568)	3,988	241	5.9%

A summary of the sample sizes and expected precision for the additional sub-populations is displayed in Table 3. The samples sizes for the sub-populations, with the exception of ICT, were calculated based on preliminary estimates of the population sizes. The final population sizes for the CSBFP and BDC sub-populations were larger than initially expected, resulting in expected SEs that fell slightly short of the precision targets. Nevertheless, the range defining the target quality indicators, as shown in Appendix C, were met for all the sub-populations. For CSBFP, the bulk of the sample size was allocated to the first stratum covering active enterprises for which information on industry and employment was available. 75% of the remaining sampled units was allocated to the second stratum and the last 25% was allocated to the third stratum. This ensured that strata with a greater probability of containing units within the scope of the survey were more heavily sampled.

Table 3: Sample sizes for sub-populations

Sub-population	Population	Sample	Expected SE
ICT	34,751	640	3.4%
Quebec	6,437	249	5.0%
Co-ops	901	617	2.7%
CSBF	3,901	1334	2.3%
PSPC	6,806	675	3.0%
ESDC	1,147	1,147	1.5%
Registered charities	340	340	3.3%
Non-profits	807	807	2.2%
BDC	7,176	1,354	2.1%
Clean Tech	1,354	622	2.9%

4 Data collection and processing
4.1 Collection

Collection for this survey was conducted using computer-assisted telephone interviews (CATI). The reference period for the survey was the 2017 calendar year. Interviews began in February 2018 and ended in June 2018.

A summary of collection results from the base sample (after edits) is presented in the table below. There were survey respondents, non-respondents and out-of-scope units.

Similar data for the additional populations are available in Appendix D (Tables D1 to D7).

Table 4. Collection results from the main sample

Category	Frequency
Respondents	**9,115**
Respondents	
Out of scope	**1,223**
Screened out	958
Out of business	231
Change of ownership	28
Other out of scope	6
Non-response	**6,985**
Non-response by survey deadline	5,179
Refusal	1,367
Chronic Refusal	188
Unable to locate	150
Other non-response	101
Total	**17,323**

4.2 Data editing

Edits were put in place in the collection application to validate data reported by respondents during the interviews. These were primarily soft edits which flagged issues to the interviewers to be corrected by the respondent in real-time, but the majority of the edits could be overridden by the interviewer.

The Social Survey Processing Environment (SSPE) was used to process the SFGSME results. Four different types of edits were employed to process the data:

1) Correction edits. These edits automatically made changes to the data based on specific criteria. For example, if a respondent in Quebec failed to respond to the data sharing question (L.1), a response of No ('3') was automatically put in place.
2) Flag edits. These edits flagged situations that needed to be investigated. For example, respondents that reported being founded prior to 1900 were flagged to be investigated to see whether this seemed to be correct.
3) Imputation edits. These edits set up data along skip patterns to ensure that that if the response to a given question was imputed, subsequent questions were set for imputation. For example, if a response about whether a respondent requested a non-residential mortgage was flagged for imputation, the rest of the questions related to non-residential mortgages were also flagged for possible imputation.
4) Flow edits. These edits populated the microdata file with values to indicate cells that did not have a response because the question was skipped as the result of a skip pattern.

Furthermore, the questionnaire includes a number of quantitative variables. Those variables were analyzed for the presence of outliers. They were identified using the technique proposed in Hidiroglou-Berthelot (1986) and the Sigma-gap method. This method is implemented using the modules in the generalized system BANFF, which was developed by Statistics Canada. All potential outliers were reviewed by CSBP analysts and ISED. Processing of problematic cases is done through imputation.

4.3 Completion and response rates

The completion rate represents the number of respondents divided by the total sample.
The completion rate for the main survey is 53%, approximately the same as for the 2014 survey.

To determine the response rate, the total number of in-scope units must be determined. This figure includes all respondents, in-scope seasonal or part-time operations, and an estimate of the number of in-scope units among the remaining non-respondents. This estimate is calculated using the proportion of known in-scope units and known out-of-scope units, giving the "in-scope rate".

The in-scope rate can be calculated as follows:

$$\frac{Number\ of\ known\ in-scope\ units}{Number\ of\ known\ in-scope\ units + Number\ of\ known\ out-of-scope\ units}$$

Using the figures in Table 4, this rate is estimated at 88.2%. Using the in-scope rate, we can estimate the total number of in-scope units. It is equal to:

Total in-scope units = 9,115 + 88.2%*6,985 ≈ 15,274

The response rate is then calculated. It corresponds to the number of respondents divided by the number of estimated in-scope units:

$$\text{Response rate} = \frac{\text{Respondents}}{\text{Total in-scope units}} = 59.7\%$$

Respondents were also asked whether they wished to share the survey results with the Institut de la statistique du Québec. A breakdown of respondents, completion rate, response rate and share rate by size, region and industry is given in Table 5 for the base sample. Table 6 presents similar figures for the additional populations.

Table 5. Completion, response and share rates for the base population

Category	Sample	Respondents	Completion rate	Response rate	Share rate
NATIONAL	17,323	9,115	52.62%	59.68%	93.46%
1 to 4 employees	7,379	3,556	48.19%	58.07%	93.15%
5 to 19 employees	4,789	2,645	55.23%	59.66%	92.82%
20 to 99 employees	2,815	1,696	60.25%	63.87%	93.18%
100 to 499 employees	2,340	1,218	52.05%	59.74%	95.56%
Atlantic	1,721	899	52.24%	58.45%	-
B.C. and territories	1,608	814	50.62%	57.03%	-
Ontario	8,429	4,380	51.96%	59.59%	-
Manitoba and Saskatchewan	1,296	671	51.77%	58.87%	-
Alberta	1,510	838	55.50%	63.38%	-
Quebec	2,759	1,513	54.84%	60.60%	93.46%
Accommodations	1,646	827	50.24%	56.56%	92.90%
Construction	1,998	1,054	52.75%	58.91%	93.43%
Manufacturing	1,541	876	56.75%	60.09%	93.03%

Other services	1,491	774	51.91%	58.15%	90.97%
Primary	1,699	894	52.91%	58.68%	94.81%
Professional	1,804	1,010	55.99	63.14%	92.91%
Retail	1,775	975	54.93%	61.97%	93.37%
Transportation	1,631	767	47.03%	58.49%	89.92%
Wholesale	1,483	841	56.71%	63.05%	96.69%
All other	2,255	1,097	48.65%	58.18%	95.83%

Table 6. Completion, and response for additional populations

Population	Category	Sample	Respondents	Completion rate	Response rate
ICT	National	640	365	57.03%	65.31%
PSPC	National	675	399	59.11%	65.63%
Co-ops	National	617	399	64.67%	78.12%
CSBF	National	1,334	684	51.27%	56.82%
BDC	National	1,354	750	55.39%	59.23%
ESDC	National	1,146	601	52.44%	78.71%
Clean Tech	National	622	411	66.08%	70.42%

4.4 Imputation

After the microdata were edited, a variable was created for each survey variable to identify those that failed to meet the edit rules or that had missing values. Two categories of units were created: total non-response cases and partial non-response cases. Total non-response units were treated through weighting, as the weights of responding units in the same homogenous class with respect

to the propensity to respond were adjusted to represent the non-response units as well. Partial non-responding units were processed using imputation.

Imputation for partial non-response was done separately for each of the different target populations. For instance, complete data from the sample of co-operatives could not be used to impute missing data for units in the information and communication technologies sample. The missing variables were imputed using either a randomly selected donor or the nearest neighbour method. For the nearest neighbour approach, the minimax distance function was used to find the closest donor. The minimax distance function determines the closest donor as being the one with the smallest maximum absolute difference between the value of its matching variables and those of the recipient. For most variables, the matching variable used was the revenue figure obtained from the BR. Imputation was performed within groups of units referred to as imputation classes. These imputation classes were formed of units of similar size (employment), of similar age, in the same industry and geography.

A minimum number of units was required in each imputation class. When the imputation classes were too small, larger classes were created by combining several classes.

To ensure internal consistency (coherence among variables of the same record), the value of missing or inconsistent variables was imputed in the order in which they appeared on the questionnaire. Using this method, a question asked at one point in the questionnaire that led to imputation may have been used as a matching variable for a question further in the questionnaire.

Most imputation of survey data was performed electronically using BANFF, a generalized system designed by Statistics Canada.

The imputation rate for a given variable is defined as follows:

$$\text{Imputation rate} = \frac{\text{Number of units imputed}}{\text{Total number of units that should respond to this question}}$$

Table 7 presents the minimum and maximum imputation rates in each section for the base population. The distribution of variables is also presented based on the imputation rates observed.

For a given section, the imputation rate is calculated on all the variables in the section. The minimum and maximum imputation rates for the section correspond respectively to the lowest and highest rates observed for all the variables for that section. For example, it can be seen in Table 7 that the minimum imputation rate for all 21 variables in the "General financing" section is 7.24%, while the maximum imputation rate in the same section is 17.48%.

The second part of Table 7 shows the distribution of the variables in a given section based on different intervals of imputation rates. For example, in the section on General financing, it can be seen that 3 of the 21 variables have an imputation rate of less than 15% and the rest of the variables have an imputation rate of between 15% and 30%.

Tables E1 to E7 in Appendix E present similar imputation rates for the additional populations.

Table 7. Imputation rate ranges by section for the base sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0.00	0.11	12	0	0	0	0
General financing	7.24	17.48	3	18	0	0	0
Mortgages	0.97	25.00	5	8	0	0	0
Line of credit	1.14	33.33	11	0	1	0	0
Term loans	0	21.44	12	1	0	0	0
Business credit card	1.17	37.77	10	2	0	0	0
General debt financing	6.96	14.75	17	0	0	0	0
Lease financing	1.25	20.83	4	1	0	0	0
Trade credit financing	2.75	16.55	2	1	0	0	0
Equity financing	2.72	21.30	1	1	0	0	0
Government grants, subsidies or non-repayable contributions	2.76	14.79	3	0	0	0	0
Reasons for not requesting financing	5.36	5.36	1	0	0	0	0
General business information	5.50	23.32	70	46	0	0	0
Owner information	5.74	20.59	10	3	0	0	0
Social enterprises	0.00	28.83	7	7	0	0	0

4.5 Weighting (treatment of non-response by unit)

Weighting is the step in the process in which final weights are calculated. These weights are used to produce point and variance estimates.

Weighting of the general population is done in two steps. First, survey weights are calculated in each stratum, as the ratio between stratum size and the number of units selected in the sample. Second, final weights are calculated. Logistic regression was used to obtain estimated probabilities that a given unit is resolved. Clustering was applied to these probabilities in order to form homogenous classes with respect to the propensity to respond. Within each response class, the non-response factor is calculated using the ratio of the total number of enterprises in the class over the number of resolved enterprises in the sample. The non-response factors can be viewed as survey weights at a second sampling phase. Using two phase calibration, the final weights are calculated by calibrating the non-response weights, defined as the initial survey weight multiplied by the non-response factor, to the population counts by age, size, industry and region.

As with the general population, weighting of special populations is also performed in two steps. In the first step, survey weights are calculated for the entire sample. In the second step, survey weights are adjusted to take non-response by unit into account using the same reweighting

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procedures as used for the general population. However, calibration is performed with respect to population counts by stratum.

5   Estimation, quality and disclosure control

Data for top contributors were reviewed for accuracy for weighted data. This included an analysis of the responses with the highest weights and their reported values for mandatory questions such as amounts of financing and authorized. For all financial questions, except for equity financing (31.4%), the top 10 contributors always contributed to less than 10% of the total estimate. After completing this analysis, CSBP was able to conclude that largest respondents were not assigned weights that would see them inappropriately influence the estimate.

Variance estimation was performed using generalized estimation systems to produce estimates of the quality of data. Coefficients of Variation (CVs) or Standard Errors (SEs) were calculated for each estimate. In conformance with Statistics Canada standards, data quality was assigned to each estimate using an alphabetical character between "A" and "F", based on percent thresholds required by the sponsors.

This table provides a summary of the reliability indicators for the estimates.

Dimension	Quality Indicator of A	Quality Indicator of B	Quality Indicator of C	Quality Indicator of D	Quality Indicator of E	Quality Indicator of F
All Cells in Data Tables	14,120	5,329	2,022	763	623	337

Statistics Canada has started to implement a new data suppression approach for selected economic statistics programs. The change responds to users' demands to increase the amount of data in the public domain, yet still respects the confidentiality requirements of the Statistics Act. The Survey on Financing and Growth of Small and Medium Enterprises is one of the economic statistics programs that has implemented the new data suppression approach. The application of the new approach will result in more data being available in the public domain.

This new approach does not reduce the necessary level of protection of information, rather it better aligns the approach with the requirements of the Statistics Act, including the protection of information and the agency's mandate to provide relevant and comprehensive data to the public. Although more data is available under the new approach, Statistics Canada continues to respect the confidentiality provisions of the Statistics Act. Statistics Canada will not disclose information obtained under the Statistics Act in such a manner that it is possible from the disclosure to relate the particulars obtained to any identifiable individual person, business or organization.

Appendix A: Definitions for Industry Domains

Table A1: ICT as defined by ISED

NAICS	Description
3341	Computer and peripheral equipment manufacturing
3342	Communications equipment manufacturing
3343	Audio and video equipment manufacturing
3344	Semiconductor and other electronic component manufacturing
3346	Manufacturing and reproducing magnetic and optical media
4173	Computer and communications equipment and supplies merchant wholesalers
5112	Software publishers
5182	Data processing, hosting, and related services
5415	Professional, scientific and technical services
8112	Electronic and precision equipment repair and maintenance

Table A2. NAICS codes included in industry domains

Industry	NAICS industry sectors
Primary	11, 21
Construction	23
Manufacturing	31-33
Wholesale trade	41
Retail trade	44-45
Transportation	48-49
Professional services	54
Accommodations	72
Other services	81
Other	51, 53, 56, 62, 71

Table A3: Southern and Northern Ontario Census Divisions

Region	Census Divisions
Southern Ontario	Stormont, Dundas and Glengarry, Prescott and Russell, Ottawa, Leeds and Grenville, Lanark, Frontenac, Lennox and Addington, Hastings, Prince Edward, Northumberland, Peterborough, Kawartha Lakes, Durham, York, Toronto, Peel, Dufferin, Wellington, Halton, Hamilton, Niagara, Haldimand-Norfolk, Brant, Waterloo, Perth, Oxford, Elgin, Chatham-Kent, Essex, Lambton, Middlesex, Huron, Bruce, Grey, Simcoe, Haliburton, Renfrew
Northern Ontario	Muskoka, Nipissing, Parry Sound, Manitoulin, Sudbury, Greater Sudbury, Timiskaming, Cochrane, Algoma, Thunder Bay, Rainy River, Kenora

Table A4: Knowledge-based Industries

NAICS	Description
325410	Pharmaceutical and medical manufacturing
333310	Commercial and service industry machinery manufacturing
334110	Computer and peripheral equipment manufacturing
334210	Telephone apparatus manufacturing
334220	Radio and television broadcasting and wireless communications equipment manufacturing
334290	Other communications equipment manufacturing
334310	Audio and video equipment manufacturing
334410	Semiconductor and other electronic component manufacturing
334511	Navigational and guidance instruments manufacturing
334512	Measuring, medical and controlling devices manufacturing
335920	Communication and energy wire and cable manufacturing
336410	Aerospace product and parts manufacturing
511210	Software publishers
512110	Motion picture and video production
512190	Post-production and other motion picture and video industries
515210	Pay and specialty television
517310	Wired and wireless telecommunications carriers (except satellite)
517410	Satellite telecommunications
517911	Telecommunications resellers
517919	All other telecommunications
518210	Data processing, hosting, and related services
541360	Geophysical surveying and mapping services
541370	Surveying and mapping (except geophysical) services
541510	Computer systems design and related services
541620	Environmental consulting services
541690	Other scientific and technical consulting services
541710	Research and development in the physical, engineering and life sciences
541990	All other professional, scientific and technical services

Table A5: Tourism Industries

Tourism Industries	
NAICS	**Description**
4811	Scheduled air transportation
4812	Non-scheduled air transportation
4821	Rail transportation
4831	Deep sea, coastal and great lakes water transportation
4832	Inland water transportation
4851	Urban transit systems
4852	Interurban and rural bus transportation
4853	Taxi and limousine service
4854	School and employee bus transportation
4855	Charter bus industry
4859	Other transit and group passenger transportation
4871	Scenic and sightseeing transportation, land
4872	Scenic and sightseeing transportation, water
4879	Scenic and sightseeing transportation, other
51213	Motion picture and video exhibition
5615	Travel arrangement and reservation services
7111	Performing arts companies
7112	Spectator sports
7115	Independent artists, writers and performers
7121	Heritage institutions
7131	Amusement parks and arcades
7132	Gambling industries
7139	Other amusement and recreation industries
7211	Traveller accommodation (except Motels)
721114	Motels
721198	All other traveller accommodation
721211	Recreational vehicle (RV) parks and campgrounds
721212	Hunting and fishing camps
7224	Drinking places (alcoholic beverages)
7225	Full-service restaurants and limited-service eating places

Appendix B: Sample Size Allocation

For each domain d, we assume a value of 50% for the proportions of interest to ensure the sampling variance V_d is at a maximum. For stratum h, let

N_h = stratum population size

n_h = stratum sample

N_d = domain population size

$N_{h,d}$ = number of units in domain d contained in stratum h.

We need to minimize overall sample size $\sum n_h$ with respect to the set of domain variance constraints $V_d \leq SE_d^2$ where SE_d the target standard errors (Table 1) and

$$V_d = \sum_h N_h^2 \left(\frac{1}{n_h} - \frac{1}{N_h} \right) S_{h,d}^2$$

$$S_{h,d}^2 = \frac{1}{(N_h - 1)} \frac{N_{h,d}}{4N_d^2}$$

To solve for the values n_h we re-write the above equation as

$$V_d = v_{0,d} + \sum_h \frac{v_{h,d}}{n_h}$$

where $v_{0,d} = -\sum_h N_h S_{h,d}^2$ and $v_{h,d} = N_h^2 S_{h,d}^2$.

The stratum-level sample sizes (n_h) were calculated using the non-linear programming solution (PROC NLP). The resulting values were inflated to account for non-response, assuming a 35% response rate for start-ups and a 40% response rate for the general population. A minimum stratum sample size requirement of 10 units for province level strata and 5 units for strata defined at the sub-province level within Atlantic Canada and Ontario was imposed. For a few strata, this increase is not possible. We calculated the expected standard error for each domain, based on the response rate and a sampled proportion of 50%. If the expected standard error fell short of the precision target for a given domain then the contributing strata were all set as take-all. As a result for every domain, either a census was taken or the expected standard error met the precision targets.

Appendix C: Quality Indicators

Standard Error (SE) Range	Quality Indicator Level
0.00 % – 2.49 %	A – Excellent
2.50 % – 4.99 %	B – Very Good
5.00 % – 7.49 %	C - Good
7.50 % – 9.99 %	D – Acceptable
10.00 % – 14.99 %	E – Use with caution
Greater than 15.00 %	F – Unreliable

Appendix D: Collection Results from Sub-populations

Table D1. Collection results from the ICT sample

Category	Frequency
Respondents	**365**
Respondents	
Out of scope	**53**
Screened out (71)	47
Out of business (60)	6
Change of ownership (62)	0
Other out of scope	0
Non-response	**222**
Non-response by survey deadline (51)	183
Refusal (40)	28
Chronic Refusal (41)	2
Unable to locate (61)	5
Other non-response	4
Total	**640**

Table D2. Collection results from the PSPC sample

Category	Frequency
Respondents	**399**
Respondents	
Out of scope	**44**
Screened out (71)	33
Out of business (60)	5
Change of ownership (62)	6
Other out of scope	0
Non-response	**232**
Non-response by survey deadline (51)	184
Refusal (40)	35
Chronic Refusal (41)	7
Unable to locate (61)	2
Other non-response	4
Total	**675**

Table D3. Collection results from the Co-ops sample

Category	Frequency
Respondents	**399**
Respondents	
Out of scope	**83**
Screened out (71)	72
Out of business (60)	10
Change of ownership (62)	0
Other out of scope	1
Non-response	**135**
Non-response by survey deadline (51)	103
Refusal (40)	24
Chronic Refusal (41)	6
Unable to locate (61)	1
Other non-response	1
Total	**617**

Table D4. Collection results from the CSBF sample

Category	Frequency
Respondents	**684**
Respondents	
Out of scope	**74**
Screened out (71)	57
Out of business (60)	16
Change of ownership (62)	1
Other out of scope	0
Non-response	**576**
Non-response by survey deadline (51)	460
Refusal (40)	88
Chronic Refusal (41)	9
Unable to locate (61)	8
Other non-response	11
Total	**1,334**

Table D5. Collection results from the BDC sample

Category	Frequency
Respondents	**750**
Respondents	
Out of scope	**52**
Screened out (71)	40
Out of business (60)	7
Change of ownership (62)	4
Other out of scope	1
Non-response	**552**
Non-response by survey deadline (51)	449
Refusal (40)	84
Chronic Refusal (41)	11
Unable to locate (61)	4
Other non-response	4
Total	**1,354**

Table D6. Collection results from the ESDC sample

Category	Frequency
Respondents	**601**
Respondents	
Out of scope	**301**
Screened out (71)	288
Out of business (60)	10
Change of ownership (62)	0
Other out of scope	3
Non-response	**244**
Non-response by survey deadline (51)	203
Refusal (40)	31
Chronic Refusal (41)	8
Unable to locate (61)	1
Other non-response	1
Total	**1,146**

Table D7. Collection results from the Clean Tech sample

Category	Frequency
Respondents	**411**
Respondents	
Out of scope	**27**
Screened out (71)	19
Out of business (60)	5
Change of ownership (62)	3
Other out of scope	0
Non-response	**184**
Non-response by survey deadline (51)	134
Refusal (40)	37
Chronic Refusal (41)	9
Unable to locate (61)	2
Other non-response	2
Total	**622**

Appendix E: Imputation Rates for Sub-populations

Table E1. Imputation rate ranges by section for the ICT sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0	12	0	0	0	0
General financing	6.30	21.74	11	10	0	0	0
Mortgages	0	0.82	13	0	0	0	0
Line of credit	0	17.86	11	1	0	0	0
Term loans	0	21.05	12	1	0	0	0
Business credit card	0	29.73	11	1	0	0	0
General debt financing	2.90	13.04	17	0	0	0	0
Lease financing	0	0.55	5	0	0	0	0
Trade credit financing	1.92	13.64	3	0	0	0	0
Equity financing	0	2.19	2	0	0	0	0
Government grants, subsidies or non-repayable contributions	0	4.55	3	0	0	0	0
Reasons for not requesting financing	2.87	2.87	1	0	0	0	0
General business information	4.11	27.55	89	27	0	0	0
Owner information	3.84	18.66	12	1	0	0	0
Social enterprises	0	30.00	6	7	1	0	0

Table E2. Imputation rate ranges by section for the PSPC sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0.25	12	0	0	0	0
General financing	4.76	20.31	8	13	0	0	0
Mortgages	0	20.83	11	2	0	0	0
Line of credit	0	19.30	11	1	0	0	0
Term loans	0	28.95	10	3	0	0	0
Business credit card	0	50.00	9	1	1	0	1
General debt financing	4.11	11.51	17	0	0	0	0
Lease financing	0	14.29	5	0	0	0	0
Trade credit financing	2.51	12.03	3	0	0	0	0
Equity financing	2.01	9.09	2	0	0	0	0
Government grants, subsidies or non-repayable contributions	0	13.16	3	0	0	0	0
Reasons for not requesting financing	4.62	4.62	1	0	0	0	0
General business information	4.01	82.71	96	16	0	0	4
Owner information	5.26	20.00	11	2	0	0	0
Social enterprises	0	30.77	6	7	1	0	0

Table E3. Imputation rate ranges by section for the Co-ops sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0	12	0	0	0	0
General financing	7.02	30.80	3	17	1	0	0
Mortgages	0	13.16	13	0	0	0	0
Line of credit	0	66.67	4	1	6	0	1
Term loans	0	21.15	12	1	0	0	0
Business credit card	0	29.27	11	1	0	0	0
General debt financing	2.07	14.18	17	0	0	0	0
Lease financing	0	4.17	5	0	0	0	0
Trade credit financing	2.01	17.46	2	1	0	0	0
Equity financing	3.01	16.00	1	1	0	0	0
Government grants, subsidies or non-repayable contributions	2.51	11.54	3	0	0	0	0
Reasons for not requesting financing	4.29	42.9	1	0	0	0	0
General business information	0	26.09	73	43	0	0	0
Owner information	2.86	38.85	7	1	5	0	0
Social enterprises	0	23.49	6	8	0	0	0

Table E4. Imputation rate ranges by section for the CSBF sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0.15	12	0	0	0	0
General financing	5.56	10.43	21	0	0	0	0
Mortgages	0	21.11	12	1	0	0	0
Line of credit	0	38.07	11	0	1	0	0
Term loans	0	21.37	12	1	0	0	0
Business credit card	0	35.78	11	0	1	0	0
General debt financing	2.29	5.47	17	0	0	0	0
Lease financing	0	4.88	5	0	0	0	0
Trade credit financing	2.38	11.31	3	0	0	0	0
Equity financing	0	3.36	2	0	0	0	0
Government grants, subsidies or non-repayable contributions	3.07	13.16	3	0	0	0	0
Reasons for not requesting financing	9.72	9.72	1	0	0	0	0
General business information	5.56	25.23	80	36	0	0	0
Owner information	4.24	15.13	12	1	0	0	0
Social enterprises	0	22.44	7	7	0	0	0

Table E5. Imputation rate ranges by section for the BDC sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0	12	0	0	0	0
General financing	7.07	18.43	9	12	0	0	0
Mortgages	0	22.35	12	1	0	0	0
Line of credit	0	25.23	11	1	0	0	0
Term loans	0	19.29	12	1	0	0	0
Business credit card	0	34.29	9	2	1	0	0
General debt financing	2.47	14.04	17	0	0	0	0
Lease financing	0	7.04	5	0	0	0	0
Trade credit financing	3.47	14.46	3	0	0	0	0
Equity financing	3.47	22.22	1	1	0	0	0
Government grants, subsidies or non-repayable contributions	3.87	11.43	3	0	0	0	0
Reasons for not requesting financing	2.50	2.50	1	0	0	0	0
General business information	5.60	26.91	70	46	0	0	0
Owner information	3.73	19.32	12	1	0	0	0
Social enterprises	0	22.35	7	7	0	0	0

Table E6. Imputation rate ranges by section for the ESDC sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0.50	12	0	0	0	0
General financing	0	29.98	3	18	0	0	0
Mortgages	0	50	5	1	0	0	7
Line of credit	0	33.33	11	0	1	0	0
Term loans	0	6.25	13	0	0	0	0
Business credit card	0	41.98	11	0	0	1	0
General debt financing	5.56	11.61	17	0	0	0	0
Lease financing	0	15.38	4	1	0	0	0
Trade credit financing	0	19.09	2	1	0	0	0
Equity financing	0	14.29	2	0	0	0	0
Government grants, subsidies or non-repayable contributions	0	9.13	3	0	0	0	0
Reasons for not requesting financing	4.55	4.55	1	0	0	0	0
General business information	0	34.78	76	28	12	0	0
Owner information	0	45.55	11	1	0	1	0
Social enterprises	0	13.81	14	0	0	0	0

Table E7. Imputation rate ranges by section for the Clean Tech sample

Section	Minimum rate (%)	Maximum rate (%)	< 15%	15% to 30%	30% to 40%	40% to 50%	50% to 100%
Screening questions	0	0	12	0	0	0	0
General financing	6.57	26.67	3	18	0	0	0
Mortgages	0	11.76	13	0	0	0	0
Line of credit	0	33.33	6	2	4	0	0
Term loans	0	25.00	6	7	0	0	0
Business credit card	0.49	100	3	0	0	1	8
General debt financing	5.13	14.08	17	0	0	0	0
Lease financing	0	4.65	5	0	0	0	0
Trade credit financing	1.73	11.70	3	0	0	0	0
Equity financing	2.68	22.22	1	1	0	0	0
Government grants, subsidies or non-repayable contributions	2.38	13.89	3	0	0	0	0
Reasons for not requesting financing	6.82	6.82	1	0	0	0	0
General business information	3.89	30.71	97	15	4	0	0
Owner information	6.08	18.92	11	2	0	0	0
Social enterprises	0	32.74	7	2	5	0	0