

Gender-responsive public procurement: strategies to support women-owned enterprises

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Abstract

Purpose – This paper aims to inform strategies to enhance public procurement opportunities for women-owned small- and medium-sized enterprises (SMEs). To do so, the study examines two research questions: To what extent are women-owned enterprises under-represented among SME suppliers to government; and Do barriers to public procurement – as perceived by SME owners – differ across gender?

Design/methodology/approach – The study draws on the resource-based view (RBV) of the firm and on theories of role congruity and social feminism to develop the study's hypotheses. Empirical analyses rely on comparisons of a sample of 1,021 SMEs that had been suppliers to government and 9,376 employer firms that had not been suppliers to government. Data were collected by Statistics Canada and are nationally representative. Logistic regression analysis was used to control for systemic firm and owner differences.

Findings – Controlling firm and owner attributes, majority women-owned businesses were underrepresented as SME suppliers to government in some, but not all sectors. Women-owned SMEs in Wholesale and Retail and in Other Services were, *ceteris paribus*, half as likely as to be government suppliers as counterpart SMEs owned by men. Among Goods Producers and for Professional, Scientific and Technical Services SMEs, there were no significant gender differences in the propensity to supply the federal government. “Complexity of the contracting process” and “difficulty finding contract opportunities” were the obstacles to contracting cited most frequently.

Research limitations/implications – The limitations of using secondary analyses of data are well documented and apply here. The findings reflect only the perspectives of “successful bidders” and do not capture SMEs that submitted bids but were not successful. Furthermore, the survey did not include questions

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about sub-contractor enterprises, data that would likely provide even more insights about SMEs in government supply chains. Accordingly, the study could not address sub-contracting strategies to increase the number of women-owned businesses on government contracts. Statistics Canada's privacy protocols also limited the extent to which the research team could examine sub-groups of small business owners, such as visible minorities and Indigenous/Aboriginal persons. It is also notable that much of the SME literature, as well as this study, define gender as a dichotomous (women/female, men/male) attribute. Comparing women/female and men/males implicitly assumes within group homogeneity. Future research should use a more inclusive definition of gender. Research is also required to inform about the obstacles to government procurement among the population of SMEs that were unsuccessful in their bids.

Practical implications – The study provides benchmarks on, and directions to, enhance the participation of women-owned SMEs or enterprises in public procurement. Strategies to support women-owned small businesses that comply with United Nations Sustainable Development Goals are advanced.

Social implications – The study offers insights to reconcile economic efficiency and social (gender equity) policy goals in the context of public procurement. The “policy-practice divides” in public procurement and women's enterprise policies are discussed.

Originality/value – The study is among the first to use a feminist lens to examine the associations between gender of SME ownership and public procurement, while controlling for other salient owner and firm attributes.

Keywords Gender, Small business, Procurement, Contracting, Policy small business, Procurement, Contracting, Policy, Government

Paper type Research paper

1. Introduction

This study seeks to inform strategies to enhance gender-responsive public procurement opportunities for women-owned small- and medium-sized enterprises (SMEs) [1]. To do so, the study examines two research questions: To what extent are women-owned enterprises under-represented among small- and medium-sized enterprise suppliers to government; and Do barriers to public procurement – as perceived by small business owners – differ across gender?

The goals of public procurement (PP) entities as buyers of goods and services are broadening from that of an historical “tactical and administrative role” focused on contract efficiencies and legal conformity, to supporting strategic socio-economic outcomes. Examples of the latter include “employment, social inclusion, the protection of minorities, economic development, and environmental policy” (Patrucco *et al.*, 2017, p. 269). These shifts are motivated, in part, by the commitment of 192 signatory economies to the United Nations Sustainable Development Goals (Chin, 2017; UN Women, 2020). In particular, members economies across the Organisation for Economic Coordination and Development (Organisation for Economic Cooperation and Development, 2018a, 2018b) have developed PP policies that facilitate the participation of, and diversity among, SMEs.

Reforming PP to be inclusive of diverse SMEs is one element in supporting entrepreneurial ecosystems (Ram and Smallbone, 2003). Gender inclusive PP is viewed as a strategic tool to advance public policy goals, support economic and social development, and to foster innovation (Organisation for Economic Cooperation and Development, 2018a, 2018b). Interest in the study questions has been heightened by the COVID-19 pandemic, given evidence that women-owned SMEs are disproportionately impacted (Organisation for Economic Cooperation and Development, 2020). The pandemic has also witnessed the ability of governments to innovate procurement practices rapidly based on need and political will.

In their review of public sector procurement strategies Patrucco *et al.* (2017, p. 270) observe that administrations have had limited success in driving change. In part, this is due to misalignments among political goals, regulatory compliance, internal controls and departmental strategies. The need to “enhance gender equality through enabling the

purchase of gender-sensitive goods and services” remains (Harris Rimmer, 2017, p. 4). The need to accelerate reform is echoed within pandemic response briefs (UN WE Empower G7 Programme Team, 2020; W20, 2020). The study findings help to shape such measures.

A key input for reforming strategies for socially inclusive PP outcomes is to identify the market supply characteristics (Patrucco *et al.*, 2017) and the barriers faced by under-represented SMEs (Harris Rimmer, 2017). This research addresses these needs using the geographic context of Canada as an exemplar.

In an assessment of the Canadian small business ecosystem, the Organisation for Economic Cooperation and Development (2017, p.17) cited the need to “[b]oost interventions for financing women entrepreneurs and increasing gender diversity in public and private procurement.” The Canadian federal *Parliamentary Standing Committee on Government Operations and Estimates* has identified the need to make federal procurement of goods and services more inclusive, including for women-owned SMEs (Lukiwski, 2018). Similar calls have been expressed by the *Canada-United States Council for Advancement of Women Entrepreneurs and Business Leaders* (2017) and the Orser (2011). This research contributes to the research literature in several ways.

First, studies of government SME procurement are often atheoretical (Nicholas and Fruhmann, 2014; Patrucco *et al.*, 2019; Ancarani *et al.*, 2019). This study is anchored by three theoretical perspectives: the resource-based view (RBV) of the firm; social feminist theory; and role congruity theory. The study also informs the discussion about the “policy-practice divide” of SME-friendly procurement (Flynn and Davis, 2015, p. 559) within the context of women’s enterprise policy. The findings identify sectors for which the need for policy intervention may be the greatest, and documents specific gender differences among SME owners’ perceptions about obstacles to government procurement. The findings support theory-based research within PP (Akenroye *et al.*, 2020).

Second, the engagement of SMEs in PP is a focus of policy development among OECD members and other economies (Organisation for Economic Cooperation and Development, 2012, 2017, 2018a, 2018b, 2020). Policy development follows from research that indicates it is the growth of new firms that drives job creation and economic prosperity (Adelino *et al.*, 2017; Criscuolo *et al.*, 2017). Supplying to government enhances SME credibility, provides lead customers and supports incremental revenue (Ram and Smallbone, 2003). Yet, WEConnect International (2020) estimates that women-owned businesses earn less than 1% of the dollars spent by governments and large corporations. Obstacles that impede SME access to, and delivery of, government contracts should be minimized (Glover, 2008; Chin, 2017; Gender Integration Plan, 2013).

Third, although the economic rationales behind SME-friendly PP are generally not disputed the nature of intervention varies considerably across geo-political jurisdictions (Organisation for Economic Cooperation and Development, 2018a, 2018b). Interventions range from coercive measures, such as the Women-Owned Small Business Federal Contracting Program, a set-aside in the USA, to normative pressures via policy guidance throughout the European Union (EU). As most PP studies about SMEs are situated in the EU or the USA, this study informs the literature from the perspective of an alternative geographic setting [2]. To date, Canada’s central federal purchasing agency has pursued an approach based on eliminating or lowering barriers to PP for SMEs, rather than on offering direct preferential treatment. To inform policy, this study quantifies the extent to which federal government procurement in Canada is directed to women-owned SMEs.

Fourth, the literature is ambiguous about the links between gender of firm ownership and PP. Henry *et al.* (2017) report on gendered government policies that can reinforce institutional barriers within entrepreneurial ecosystems. Other scholars maintain that

failing to support women-owned businesses wastes intellectual resources and contributes to inequality (Alsos *et al.*, 2013; Strohmeier *et al.*, 2017). This study links the policy-practice divide identified within the women's enterprise (Henry *et al.*, 2017) to SME PP policy literatures (Nicholas and Fruhmann, 2014) to apprise potential remedial approaches.

To inform policy and practice, however, it is essential to disentangle the relative importance of gender of firm ownership on involvement in PP from confounding effects of firm and owner attributes, such as firm size and sector, that typically vary by gender. This study addresses this challenge by applying multivariate analyses to data on 10,397 SMEs, among which 1,021 respondents were "SME suppliers" to the Government of Canada. Data were drawn from the 2014 *Survey of Financing and Growth on Small and Medium Enterprises* (Statistics Canada, 2014) a nationally representative survey that includes firm and owner demographics, gender of ownership, and involvement in – and experience with – federal government procurement.

The findings indicate that among SMEs, the propensity to supply government differs significantly by industry sector, firm size, gender of business ownership and other firm and business owner characteristics. Majority women-owned SME suppliers were relatively more likely to cite resource-demanding obstacles, including difficulty in finding contract opportunities, as barriers. Informed by the literature and findings, recommendations to improve PP benchmarking are advanced, including development of indicators and assessment criteria which gauge the impact of procurement programs. These findings seek to further stimulate discussion and research about strategies to achieve social inclusion.

To accomplish these goals, the paper is structured as follows. Section 2 presents a brief overview of the evolution of gender-responsive SME procurement policy in Canada and related literature on economic and social inclusion (gender equality). Development of the research questions and study hypotheses are advanced. Section 3 then describes study methodology and explanation of the study variables. The empirical findings are presented in Section 4. Discussion of findings and limitations follow in Section 5. Section 6 presents the study conclusions, including recommendations to inform PP policy.

2. Review of literature and conceptual rationales

2.1 Evolution of gender-responsive small- and medium-sized enterprises procurement in Canada

In 2008, federal involvement in supporting gender-responsive PP was limited to Status of Women Canada (an agency within the federal government) funding to help launch WEConnect International in Canada, a global network that connects women-owned businesses to qualified clients. In 2009, a commissioned white paper (Orser and Weeks, 2009) called for the creation of a government SME PP framework to support women-owned businesses. The report concluded that research incorporating gender-disaggregated data was required to inform government SME procurement strategies.

As of 2014, 15.7% of Canadian SMEs were majority-owned by women; however, only 10% of SME suppliers to the federal government were majority-owned by women (Statistics Canada, 2014). Subsequently, the 2017 mandate letter from the Prime Minister to the Minister responsible for Public Services and Procurement Canada (PSPC), the central federal purchasing agency, specified the need to "[...] increase the diversity of bidders on government contracts, in particular businesses owned or led by Canadians from under-represented groups, such as women [...]" (Public Services and Procurement Canada, 2017). The need to make government procurement more inclusive for SMEs, and specifically for women-owned small businesses, was emphasized further by the 2018 report of the House of

Commons Canada *Standing Committee on Government Operations and Estimates* inquiry (Lukiwski, 2018).

These directives are currently being informed by leading women's business owner certification agencies, such as the Women Business Enterprises Canada (WBE Canada) and the senior level Supplier Advisory Committee (SAC) of Public Services and Procurement Canada (PSPC), among others. One objective of the SAC is to identify emerging procurement issues and to recommend improvements to procurement tools and processes (Public Services and Procurement Canada, 2020). To date, however, Canada remains less prescriptive with respect to government SME procurement policy compared to other economies [3]. Canada is, however, regarded as a leader in women's entrepreneurship policy and investment in women-focused SME support programs (Global Entrepreneurship Monitor, 2019). The federal *Women Entrepreneurship Strategy* (2018), for example, has committed 5B (\$CDN) in support of women-owned enterprises. A pillar of the WES is improving access to federal procurement (Massie, 2020).

2.2 Gender-related challenges among small- and medium-sized enterprises to government procurement

There are few empirical studies that inform about gender-related challenges among SMEs suppliers to PP. For example, a systematic review of barriers to participation of SMEs in PP (Akenroye *et al.*, 2020) cites one gender-focused study (Medina-Arnáiz, 2010). These findings are sobering. In examining the inclusion of social clauses on gender equality within Spanish public procurement law, Medina-Arnáiz (2010, p. 557) concludes:

[...] the very limited effectiveness of these measures as a stimulus for the observance of gender equality regulations, due to their optional nature for contracting authorities and the practical difficulty of making procurement prohibitions effective.

The limited impacts of gender-based procurement policy is reflected in at least two studies of the US women-focused set-aside program (United States Government Accountability Office, 2014; Orser *et al.*, 2018). Many of the challenges associated with PP encountered by women-owned SMEs are, however, similar to those faced by all SMEs. These include overly prescriptive contract requirements, poorly written specifications and prohibitive resource requirements (Loader, 2015); limited resources with which to respond to requests for proposals (RFPs) (Miller-Kermani, 2009); lack of transparency and confidence engaging in procurement processes (Flynn and Davis, 2015); perceptions about unrealistic eligibility criteria, biased award criteria, long payment terms and complex contract management systems (Olusegun and Akinbode, 2016). Moreover, Nicholas and Fruhmann (2014, p. 335, cite Fee *et al.*, 2002; Karjalainen and Kempainen, 2008, among others) to report that the incremental cost of participating in government procurement can range from 10 to 50% higher than that of comparable private sector projects. Essentially, contracting with government is relatively resource intensive and disproportionately so for smaller businesses.

This discussion invokes the resource-based view (RBV) of the firm, a conceptual framework used to explain the linkage between strategic resources and the assets available to the firm to influence firm performance. The definition of resources in RBV is broad, encompassing

[...] all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" Barney (2001, p. 101).

In explaining the reasoning for employing RBV (specifically, dynamic capability theory) to understand the association between SMEs and PP, [Akenroye et al. \(2020, p. 4\)](#) write that resources enable firms to gather and evaluate market information, understand competitors and customers' needs, and to develop products and services to "exploit sensed opportunities" and reconfigure by "[...] enhancing, combining and transforming the firm's internal and external resources/assets." Resources are therefore associated with firm size and capabilities, where larger firms retain more resources to exploit PP opportunities. Using firm size as a proxy for resources available to the firm, the first hypothesis is advanced:

H1. Smaller SMEs are less likely to engage in government procurement compared to larger SMEs.

Building on RBV, on average, women-owned small businesses face additional challenges compared to men. The [International Trade Centre \(2014, p. 4\)](#), for example, report that women-owned businesses:

[...] [t]end to be smaller; are often less experienced; have less access to human, financial and social capital; tend to be in less-profitable sectors, such as retail sales and services; [and] have owners who tend to have more family and care responsibilities.

[Statistics Canada \(2019\)](#) confirms many of these observations, including that women-owned SMEs in Canada tend to be more concentrated in Retail and Other Services than in Manufacturing or Information, Technology and Communications (ICT) sectors. Sector-related differences are consistent with social feminism and role congruity theory. These perspectives are relevant given how politicians and policy makers position women small business owners, and assumptions about how the economic and social contributions of women-owned SMEs impact ecosystem support. These views also permeate the nature of government policy and program interventions ([Pettersson et al., 2017](#); [Henry et al., 2017](#)). Feminist theory responds to concerns that small business policies continue to be framed and implemented through the experiences and expectations of men small business owners ([Pettersson et al., 2017](#)) versus women small business owners' lived experiences and expectations when considering the strategic use of PP to support SMEs ([Orser et al., 2018](#)).

According to social feminist theory, gender is a social outcome, where differences between women and men are due to socialization ([Ahl, 2004](#)). Social feminism, in concert with role congruity theory ([Eagly and Karau, 2002](#)), helps to explain why women are relatively less likely to pursue STEM [science, technology, engineering and mathematics] forms of post-secondary education and related business start-ups compared to men. Women perceive that they "don't fit" masculine occupational role stereotypes. The dynamics of traditional gender roles are then evidenced in professional credentialization and SME sector engagement. "[S]ocial positionality and resource access are linked to structural gender inequalities" ([Dy et al., 2017, p. 293](#)); hence, gender differences in the proportional participation of SMEs across industrial sectors is the norm. This rationale implies the need for disentangling the gender impacts of (in)congruity as evidenced in sector engagement, as one of several confounding factors associated with SME engagement in PP.

Implications of gender role congruity are witnessed in the disproportionate representation of men-owned SMEs among industry sectors such as, Defence and Manufacturing, which are universally prioritized within government spending. Likewise, government RFPs and adjudication criteria typically exclude co-operatives, non-profit and social enterprises, forms of enterprise in which women-owned businesses are

disproportionately represented. The combination of structural factors and spending priorities infers systemic exclusion and differences in the value of contracts rewarded.

Gender role congruity is further evidenced within processes of developing government procurement policy regarding SMEs. An Indonesian study provides a summary of associated gender-related barriers ([Gender Integration Plan, 2013](#), p. 35):

“Lack of representation of women among procurement committee bodies may lead to missed opportunities to integrate gender perspectives or women’s exclusion from available opportunities. [...] it appears that the procurement realm is a male dominated profession in which women are employed at lower positions, with lower levels of education. This is an important consideration, indicating the need to closely monitor the gender balance of procurement professionals that will benefit from opportunities through this project. Procurement professionals at the moment do not receive gender training, or knowledge to help them incorporate this issue into their work.”

Given documented gender differences in sector engagement, a second (null) hypothesis is advanced:

H2. After controlling for potentially confounding firm factors, including sector, women-owned SMEs are equally likely to engage in government procurement as men-owned SMEs.

Another assumption of social feminism is the recognition that gender differences in business owners’ motives, perceptions and practices contribute to differences in enterprise performance ([Ahl, 2004](#)). For example, women business owners’ lower engagement in PP may reflect perceptions of not being taken seriously, fear of rejection as a result of insufficient size and procurement experience, and unfounded impressions that government only procures for military and large-scale construction projects ([Miller-Kermani, 2009](#)). Accordingly, the final study (null) hypothesis is advanced:

H3. Men and women small business owners hold similar perceptions of the obstacles to government contracting, after controlling for other firm and owner attributes.

To fully level the playing field, coercive policy measures (such as, targets, quota, set-asides, preferential procurement, weighted assessment schemes) as well as capacity building interventions (such as, gender-based analysis of procurement spending, outreach, technical and financial assistance, mentor-protégé programs and funding of women business owner associations and certification organisations) may be required. To explore the extent to which women-owned small businesses engage in PP, the next section describes the data and methodology used in this study.

3. Data and methodology

This research draws on the 2014 iteration of the *Survey of Financing and Growth of Small and Medium Enterprises*, a survey (SFGSME) conducted by Innovation, Science and Economic Development Canada ([Innovation, Science and Economic Development, 2015](#)) and Statistics Canada ([Statistics Canada, 2014](#)). The sampling frame for the survey comprised businesses listed in the Business Register that employed between 1 and 499 employees, and that generated annual gross revenue of at least \$30,000, but less than \$50m in 2014. The Business Register is based on using taxation data and includes all employer businesses in Canada. From this source 19,998 firms were selected randomly. Because supplier firms were of particular interest to this survey, the random sample was augmented with the addition of 673 SMEs known to have been suppliers to the federal government (SMEs that had signed

contracts with government in the three-year period prior to the 2014 survey) [4]. The survey collection took place from February to May 2015.

The survey data comprised responses from 10,397 business owners of private sector firms (obviating potential key informant biases). As a percentage of SMEs in scope, the overall response rate was 61%, mitigating potential non-responses and selection biases. Between the random component of the sample and the additional suppliers' sample, a total 1,021 survey respondents were SME suppliers. Questionnaire data were augmented from taxation and administrative data through Statistics Canada's linkable file environment, alleviating the potential impacts of common method biases. This included assignment of industry sector, as defined by the North American Industry Classification system (NAIC). The individual enterprises in the sample are then weighted according to their representation in the target population; weights were embodied in all analyses to ensure the results were representative of the underlying population of Canadian employer SMEs.

Table 1 compares, between SME suppliers and all SMEs, salient firm and owner demographic information. Among Canadian employer SMEs, 9.8% had contracted with the government in the three-year period prior to the 2014 survey. Only 1.7% of SME suppliers were new firms (defined as businesses operating for two or fewer years) whereas 7.6% of all SMEs were new firms. Likewise, 62.6% of all SMEs had been in business for more than 10 years, compared to 83.7% of suppliers. Suppliers were concentrated in Construction and Knowledge and Technology-based sectors. Government suppliers were systemically larger than non-suppliers in terms of the number of employees.

Table 1 also shows that, overall, women-owned SMEs are less prevalent among suppliers than within the population of employer SMEs: SMEs that are at least 51% owned by women account for 15.7% of all employer SMEs but account for only 10% of SME suppliers. As noted, gender influences may be attributable to systemic differences, where men-owned SMEs – like SME suppliers – are, on average, relatively larger, older firms and less likely to be concentrated in services sectors than women-owned SMEs.

To discern the effect of gender on the likelihood of being a government SME supplier, it is necessary to control for systemic gender differences. Therefore, data analyses relied primarily on an estimation of multivariate logistic regression models. To test the first two study hypotheses, the dependent variable was a dichotomous variable that designated whether (= 1) or not (= 0) respondent firms were government SME suppliers. Control variables included firm age, size, industry sector, export sales and innovation activity and the owner attributes of gender of business ownership, age, immigrant status, highest level of education and growth intentions (Table 2).

Likewise, to test the third hypothesis, logistic regression models were estimated using dependent variables corresponding to whether respondents had cited each of five potential obstacles as problematic. Independent variables included salient control variables and gender.

4. Empirical findings

As noted, Table 1 shows that supplier SMEs were significantly more likely to be owned by men than by women. Within the benchmark population, 64.7% of SMEs were majority men-owned and 15.7% were majority women-owned; the remainder were jointly owned, 50–50, by men and women. Among government suppliers, however, 78.5% were men-owned and 10.0% were women-owned firms. SME suppliers were growth-oriented. When business owners were asked to state their growth intentions, 81.7% of SME suppliers stated an intention to expand the scale or scope of their firms over the next three years, compared to 77.2% of all SMEs. Compared to all SMEs, SME suppliers were more than twice as likely to

Variables	All SMEs* N = 10,397	SME suppliers N = 1,021
<i>Firm attributes</i>		
Firm size		
1 to 4 employees	53.4	16.1
5 to 19 employees	34.0	22.6
20 to 99 employees	11.1	25.9
100 to 499 employees	1.6	35.0
Growth expectations		
More than 10% per year	21.2	20.3
1–10% per year	56.0	61.4
No growth	22.8	18.2
Age of firm		
Less than 2 years	7.6	1.7
3 to 10 years	29.9	14.6
11 years or more	62.5	83.7
Innovation		
Product	25.6	38.3
Process	17.7	20.6
Organizational	19.0	26.1
Marketing	19.5	24.1
Any of the above	41.6	56.1
Sector		
Goods producers	28.8	35.9
Wholesale and retail	24.0	36.1
Professional, Scientific and Technical Services	11.3	16.1
Other services	35.9	11.9
Reported international sales	11.8	24.8
Reported interprovincial sales	21.0	52.3
<i>Owner attributes</i>		
Age of owner		
<30 years old	1.9	1.7
30 to 39 years old	12.7	6.0
40 to 49 years old	26.1	22.9
50 to 64 years old	47.5	54.7
65+ years old	11.8	14.8
Education of owner		
Less than high school	8.0	4.5
High school	22.8	16.7
College/CEGEP/Trade School	30.7	26.5
Bachelor's degree	24.1	35.1
Master's degree or above	14.4	17.3
Born outside of Canada (Immigrants)	23.6	18.2
Percentage of women ownership		
100% men-owned	53.7	58.9
51% to 99% men-owned	11.0	19.6
Equal men/women	19.7	11.5
51% to 99% women-owned	2.2	2.4
100% women-owned	13.5	7.6

Table 1.
Descriptive statistics
of owner and firm
attributes

Note: *Estimates are based on the SFGSME (2014) survey weighted to be representative of the population of Canadian SME that employ between 1 and 499 employees

Table 2.
Variable definitions

Owner characteristics	Variable description
Gender of ownership	Categorical variable based on percentage of firm ownership that identifies the gender of ownership of the SME: majority women-owned; majority men-owned; and equally owned by men and women
Owner age	Age of the primary owner of the SME, measured in years
Immigrant	Whether (= 1) or not (= 0) primary owner had immigrated to Canada
Education	Highest level of education attained by the primary owner
Growth expectations	Owner's expectation of annual growth rate for 2014 to 2017. The categorical variable included: negative growth; no growth; 1% to 10%; 11% to 20%; and >20% annual growth rates
Firm characteristics	Variable description
Firm age	Age in years
Firm size	Size was measured by the natural logarithm of the number of full-time equivalent (FTE) employees
Export status	Two alternative measures were employed. One measure defined the SME as an exporter if exports accounted for any sales in 2014. The alternative measure defined the SME as an exporter if exports accounted for more than 25% of total sales
Industry sector	Industrial sector in which the SME operates. Four broad sector categories were defined according to North American Industry Classification System (NAICS) classifications: Goods Producers: NAICS 110000 to 399999; Wholesale and Retail: NAICS 410000 to 499999; Professional, Scientific and Technical services: NAICS 540000 to 549999; Other Services: NAICS 510000 to 539999 and 550000 to 919999. This breakdown was used to ensure sufficiently large sample sizes for multivariate analyses (and because certain 1-digit NAICS sectors comprised few SME suppliers)
Innovation	Dichotomous variables that take the value of 1 if respondent reported a product innovation, process innovation, marketing innovation or organizational innovation within the past 3 years, and value of 0 otherwise

export (24.8% of SME suppliers versus 11.8% of all SMEs) and more likely to innovate (56.1% compared to 41.6%, respectively) across all forms of innovation (product, marketing, organizational and process).

Women small business owners' involvement with PP is a function of industrial sector. [Table 3](#) presents the proportion of SME suppliers that were women-owned for each of four major industrial sectors, as defined in [Table 3](#): Goods Producers (primary sectors, manufacturing, etc.); Retail/Wholesale; Professional/Scientific/Technical Services; and Other Services. [Table 3](#) shows that women-owned SME suppliers are under-represented within the Other Services sector where women-owned SMEs account for 12.4% of SME suppliers, but account for nearly one-quarter of all majority-owned SMEs. Women-owned SME suppliers are slightly over-represented among Goods Producers.

4.1 Small- and medium-sized enterprises suppliers, firm size and gender of ownership

To test the first two hypotheses, that neither firm size or gender are antecedents of the likelihood of being a SME supplier to government, logistic models of the propensity to be a

supplier to the government were estimated. These multivariate models allowed for the analyses to control for the effects of potential confounding factors. Control variables included:

- Age, management experience and education of the primary business owner. Research shows that women small business owners tend to differ systemically from men small business owners in these respects (International Trade Centre, 2014; Statistics Canada, 2019).
- Whether the primary owner is an immigrant. Research shows that immigrant small business owners are export and growth-oriented (Neville *et al.*, 2014). After controlling for other firm and owner characteristics, immigrant women-owned firm are smaller and less likely to export (Neville *et al.*, 2014).
- Growth intentions: arguably, growth-oriented SMEs are motivated to supply government, given that the federal government is Canada’s single largest customer.
- Firm age and innovation activity: the latter characteristic was defined using the widely accepted definitions of innovation specified in the *Oslo Manual* (Organisation for Economic Cooperation and Development, 2005); that is, whether the firm introduced a new or modified: product or service (product innovator), production process (process innovator); form of marketing; and organizational change.

Table 4 shows the resulting model estimates of the likelihood of being a SME supplier.

4.1.1 *On firm size.* The results (Table 4) confirm that the likelihood of being a SME supplier varies by sector and is correlated with other firm and owner attributes. In particular, size of firm, as measured by number of employees, is strongly and significantly (p -value < 0.001) associated with being a government supplier among Goods Producers, Professional/Scientific/Technical and Retail/Wholesale sector firms (p -value < 0.05). This finding is consistent with RBV theory and *H1*. Larger and more established firms are relatively more likely to be SME suppliers in these sectors. Interestingly, this was not the case in the Other Services sector. Hypothesis one is partially supported. In addition:

- Among Goods Producers, exporter firms were significantly less likely to be SME suppliers than non-exporters (p -value < 0.01); SMEs owned 50–50 by men and women were 41% less likely to be government suppliers than were majority men-owned SMEs (p -value < 0.001).

Table 3.
Univariate analysis:
SME suppliers by
gender of firm
ownership and sector

	Goods producers	Wholesale and retail	Professional, Scientific, Technical	Other services	All sectors
Number of SMEs in sample	3,218	2,954	1,079	3,146	10,397
Percentage of firms that are SME suppliers within each sector (%)	11.6	9.8	13.5	7.1	9.8
Percentage of majority women-owned SMEs within each sector (%)	6.2	15.8	15.8	23.2	15.7
Percentage of SME suppliers within each sector that are majority women-owned (%)	6.9	14.2	12.7	12.4	10.0

DV = 1 if SME supplier (N = 1,021); = 0 otherwise (N = 9,376) †	Goods producers	Retail/ wholesale	Professional, Scientific and Technical Services	Other services
Immigrant primary owner	0.773	0.751	1.225	0.579**
<i>Primary owner age</i>				
30 to 39 years old	0.546	3.216	†c	2.147
40 to 49 years old	0.565	2.869	0.126***	3.442
50 to 64 years old	0.575	3.161	0.121***	3.854
65+ years old	0.436	3.235	0.066***	3.022
<i>Primary owner experience</i>				
5 to 10 years	0.807	0.643	1.927	0.595
>10 years	0.994	0.672	3.034	0.656
<i>Primary owner education</i>				
High school	0.783	1.418	†...	1.247
College/Trade School	1.147	1.362	1.978**	1.230
Bachelor's degree	0.861	1.228	1.309	1.462
Master's degree or above	1.269	0.726	†...	1.820
<i>Growth intention (per yr.)</i>				
No expectation of growth	0.568*	0.822	0.565	1.419
1–10%	0.709	1.246	0.887	1.640
11–20%	0.672	1.010	1.047	1.540
More than 20%	0.668	1.809	0.640	1.000
<i>Firm size (LN (FTE))</i>				
Early-stage firm	1.308***	1.237***	1.184*	1.058
	0.627	0.543	0.439*	0.910
<i>Innovation</i>				
Product innovator	0.943	0.915	1.108	2.038***
Process innovator	1.241	0.881	1.097	1.069
Organizational innovator	1.203	1.751	0.853	1.311
Marketing innovator	1.171	1.376	0.831	0.739
Exporter (> 25% of sales)	0.431**	0.252***	1.225	0.634
<i>Gender: % of ownership</i>				
50–50%	0.590***	0.787	1.265	1.043
Majority women-owned	1.388	0.444***	0.596	0.480**
Observations	2,747	2,338	990	2,373
<i>p</i> -value, model	0.000	0.000	0.001	0.002
Pseudo <i>R</i> squared	0.043	0.058	0.066	0.048

Notes: †Certain fields are suppressed to ensure Statistics Canada guarantee of confidentiality to respondents. **p*-value < 0.05; ***p*-value < 0.01; ****p*-value < 0.001

Table 4.
Logistic regression
models of being a
SME supplier, by
sector

- In the Retail/Wholesale sectors, exporters were less likely to be SME suppliers (*p*-value < 0.001).
- Older small business owners were significantly less likely than younger small business owners to be among government SME suppliers in Professional, Scientific and Technical Services (*p*-value < 0.000).
- In the Other Services sector, product innovator firms were more likely (*p*-value < 0.000) to be government SME suppliers.

4.1.2 On gender of firm ownership. A key finding shown in [Table 4](#) is that, after accounting for control variables, majority women-owned SMEs remain less than half as likely to be government SME suppliers as counterpart majority men-owned SMEs in the Retail/ Wholesale and Other Services sectors (p -value < 0.001). The second hypothesis, that after controlling for potentially confounding factors, women-owned SMEs are equally likely to engage in government procurement as men-owned SMEs, is partially refuted.

The correlation between gender of business ownership and likelihood of being a SME supplier was sector-specific. Among Goods Producers, there were no significant differences in the likelihood of contracting with the government between majority women-owned and majority men-owned small businesses. However, among Goods Producers, firms owned equally by men and women were significantly less likely to be SME suppliers. In the Professional, Scientific and Technical Services sectors, gender of business ownership was also not significantly correlated with the likelihood of being a SME supplier. These results are partially consistent with the second hypothesis; however, the results show that women-owned SMEs are least likely to be suppliers to government in the very sectors in which women-owned SMEs are most concentrated.

Additional analyses were conducted to ensure the robustness of the findings, including testing for selection biases (using the *heckprobit* procedure in Stata software; the arthro estimate was not statistically significant in all cases) and use of alternative definitions for independent variables. Alternative definitions of firms included defining “exporters” as: firms reporting any export sales or firms reporting at least 25% of sales as exports. Likewise, “immigrants” were defined alternatively as respondents who had arrived in Canada within the past five years or who were not born in Canada. Firm size was measured by: the natural logarithm of sales revenues, and a categorical measure corresponding to the number of employees. The empirical results held across all alternative definitions. Estimates of variance inflation factors did not point to excessive collinearity among the variables.

4.2 Obstacles selling to the federal government: non-suppliers and suppliers

H3 asserted that gender is not a factor with respect to perceptions of the obstacles associated with being a supplier to government. The survey data included responses as to why respondents did not sell to the government. [Table 5](#) presents the breakdowns of responses by 1-digit industrial sectors. The majority of respondents (81.5%) do not perceive that the government is a potential client. This result is not surprising in such sectors as mining and extraction. It is unlikely that SMEs in these sectors generate products or services commensurate with the needs of government. Even in those sectors in which government SME suppliers are common (for example, ICT and Construction), government was often not perceived to be a potential client (74.9% of non-supplier SMEs). Otherwise, the most frequently cited reasons for not selling to the government were a lack of awareness of contracting opportunities (10.5% of respondents) and perception that the application process was too complicated or time consuming (7.4% of respondents).

Active SME suppliers were asked to identify whether each of the following factors constituted obstacles to selling to the federal government:

- difficulty finding contract opportunities;
- complexity of contracting process;
- long delays in receiving payment;
- difficulty meeting all contract requirements; and
- difficulty providing services required.

	Federal government not a potential client (%)	Application process too complicated or time consuming (%)	Unaware of contracting opportunities (%)	Applied for a contract but was unsuccessful (%)
Non-supplier SMEs (N = 9,376)	81.5	7.4	10.5	2.0
<i>Sector (1-digit NAICS)</i>				
Agriculture/Forestry/Fishing/Hunting Industries and Mining/Oil/Gas Extraction	94.3	1.3	1.8	N/A
Accommodation and food services	92.1	1.8	3.9	N/A
Tourism	87.8	3.1	6.3	1.3
Retail	85.1	5.3	10.1	1.1
Transportation and warehousing	85.0	6.1	9.8	1.5
Information/Cultural Industries, Health Care and Social Assistance, Arts/Entertainment/Recreation, Administrative Support, etc.	84.5	6.7	8.4	1.5
Other services	83.1	4.6	10.3	1.2
Wholesale	77.8	8.0	11.9	5.0
Manufacturing	75.9	11.4	15.6	3.0
Knowledge-based industries (KBI)	74.9	14.7	17.1	1.8
Construction	73.1	10.6	14.4	3.3
Professional, Scientific and Technical services	68.0	15.8	17.1	3.3
Information and comm. technologies	50.4	32.6	27.7	5.0

Table 5.
Reasons for not selling to the government among SME non-suppliers

Among SME suppliers, the most frequently-cited obstacles were complexity of the contracting process (43.2%), difficulties in finding contracting opportunities (25.9%), and the high cost of contracting (26.5%). However, to control for systemic gender differences, a set of five logistic regression models were estimated for which the dependent variables were whether (= 1) or not (= 0) a respondent had cited as an obstacle each of the five above reasons. Control variables included immigrant status, owner experience, education, firm size and firm age. In this case, gender was set equal to one if the owner was a woman and zero otherwise. The gender variable was interacted with sector, such that for each sector the base case was firms in that sector *not* majority owned by women (Table 6).

According to Table 6, majority women-owned SMEs in the Professional, Scientific and Technical Services sectors were more likely to cite both “complexity of contracting process” and “difficulty finding opportunities” as obstacles. It is worth noting that “difficulty finding contract opportunities” and “complexity of contracting process” are front-end, or gateway, obstacles to doing business with government. There were no gender differences with respect to frequency of citing “difficulty meeting all contract requirements” except that women-owned SMEs in Retail/Wholesale were significantly less likely to cite “difficulty meeting all contract requirements.” Women-owned SMEs in Retail/Wholesale and Other Services sectors were significantly less likely to identify being able to “provide required services” as an obstacle. These observations partially refute the third hypothesis, that men and women small business owners hold similar perceptions of the obstacles to government contracting.

DV =1 if cited by SME supplier; =0 otherwise (N = 1,021)†	Finding opportunities	Contracting complexity	Payment delays	Providing required services	Meeting contract requirements
Immigrant owner	0.428**	-0.257	0.000	-0.439	-0.313
<i>Primary owner experience</i>					
5 to 10 years	-0.298	-0.768**	0.122	0.353	0.131
>10 years	-0.359	-0.418	-0.049	0.479	0.272
<i>Primary owner education</i>					
High school	-0.234	-0.103	0.139	0.102	0.449
College/Trade School	-0.331	-0.113	-0.514	0.167	0.609
Bachelor's degree	-0.162	-0.047	-0.212	0.339	0.773*
Master's degree or above	-0.557	-0.067	0.088	0.591	0.694
Firm size (LN FTE)	-0.113*	-0.018	-0.083	-0.050	0.017
Early-stage firm	0.001	-0.001	0.002	-0.006	-0.004
<i>Women-owned firms in:</i>					
Goods Producers	0.733	0.682	-0.579	NS, > 0	NS, > 0
Retail/Wholesale	0.246	-0.328	-1.300***	0.806*	S**, < 0
Professional, Scientific, etc.	1.100*	1.116*	NS, > 0	NS, > 0	NS, > 0
Other services	-0.786	-0.531	NS, < 0	S***, < 0	NS, < 0
<i>Constant</i>					
Observations	-2.163***	-0.208	0.300	-0.589	S***, < 0
<i>p</i> -value, model	1,021	1,021	1,021	1,021	1,021
Pseudo <i>R</i> squared	0.021	0.193	0.068	0.036	0.546
	0.032	0.020	0.025	0.032	0.015

Table 6.
Logistic regression
models of citing
specified barriers

Notes: †Certain fields are suppressed to ensure Statistics Canada guarantee of confidentiality to respondents. **p*-value < 0.05; ***p*-value < 0.01; ****p*-value < 0.001

5. Discussion of findings

Gender-responsive PP is a mechanism to stimulate women's entrepreneurial activity (International Trade Centre, 2014; Chin, 2017) and for many economies, a new area of policy development (Harris Rimmer, 2017; Organisation for Economic Cooperation and Development, 2018a, 2018b). Internationally, reviews of government procurement practices have transitioned from focusing on the challenges of SMEs (Glover, 2008) to understanding the engagement of under-represented groups of SMEs, including women-owned small businesses (Gender Integration Plan, 2013; Organisation for Economic Cooperation and Development, 2018a, 2018b; Lukiwski, 2018). To further inform the literature, this study examined two research questions: to what extent are women-owned enterprises under-represented among small- and medium-sized enterprise suppliers; and, do barriers to public procurement – as perceived by small business owners – differ across gender?

The study used a feminist perspective of the RBV and role congruity theory to explain gender and sector influences within government SME procurement. The study also presents evidence to reconcile arguments about SME efficiency (size) versus socially constructed gender influences addressed through social inclusion (gender equality) goals. Drawing on RBV regarding an association between firm capacity (proxied as firm size), women-owned small businesses have fewer resources with which to exploit PP procurement opportunities. Even after controlling for firm size and other factors, gender differences remained; however, these differences were specific to certain industry sectors. These findings provide evidence to support the recommendation that “solutions to these challenges must be gender-specific [. . .][s]eemingly gender-neutral rules, policies and programmes can have a disparate impact on women-owned businesses” (International Trade Centre, 2014, p. xv). The findings suggest interventions to stimulate women's entrepreneurial activity through PP should be sector-targeted and gender-responsive.

This study found that the representation of majority women-owned SME suppliers to government differs significantly across firm size and sector categories, even after accounting for other potential explanatory firm and owner attributes. Majority women-owned SME suppliers were significantly under-represented in those sectors in which women-owned firms are most concentrated: Wholesale and Retail and Other Services. In these sectors, majority women-owned businesses were less than half as likely to be SME suppliers as otherwise counterpart majority men-owned businesses. The likelihood of being a SME supplier did not differ by gender of firm ownership in either the Goods Producing or Professional, Scientific and Technical Services sectors.

One explanation for sector-based gaps in the engagement of women-owned SME suppliers in Other Services may lie with the intangible nature of the service offering. It may be more difficult to codify standards in the services sectors (where women-owned businesses are especially common) than in Goods Producing sectors. Gender influences also reflect differences in threshold firm size (scale), such as a minimum number of front-line employees needed to deliver services. In Other Services sectors, supplier reputation and client interaction, rather than detailed product specifications, may make it relatively more difficult for prospective SME suppliers to discern if their firms are capable of meeting the contract (RFP) requirements. These explanations align with rationales suggested by Karjalainen and Kempainen (2008) who report that small business owners' perceptions about their firms' resources are associated with the decision to tender on government contracts. These explanations align with the RBV of SME engagement in PP.

Another explanation is that gender gaps among SME suppliers may incorporate disparities in entrepreneurial confidence or self-efficacy that affects expectations about firm capabilities (Wilson *et al.*, 2007). This point is important given that how a business owner

perceives her/his firm's strategic resource capabilities is associated with the decision to invest resources in government tendering (Barney, 2001).

Accordingly, sector-specific interventions may support the commitment of governments to increase the number of women small business owners as SME suppliers. Communication and technical interventions should prioritize women-owned small businesses operating in Wholesale and Retail and Other Services. This includes interventions targeted at women-based business associations and networks, given evidence that "women tend to join women's business organizations more frequently than other industry or trade groups" (International Trade Centre, 2014, p. 14).

The literature review identified a *policy-practice divides* with respect to: strategic use of government procurement to support SMEs (Flynn and Davis, 2015; Glas and Eßig, 2018); and women's entrepreneurship policies and programming (Henry et al., 2017; Coleman et al., 2019). The divide includes the need to address women enterprise policies without commensurate investment in support programs targeted at women-owned small businesses. Gaps also include: limited understanding amount the effectiveness of SME-friendly PP policies and weak buyer compliance to support SME-friendly procurement (Flynn and Davis, 2015); fraud and abuse of self-certification protocols and ambiguity of set-aside program effectiveness (United States Government Accountability Office, 2014); and confusing multi-lateral trade legislation that hampers policy development and sharing of good practice. The Canadian case illustrates the policy-practice divide (Flynn and Davis, 2015; Glas and Eßig, 2018) in the context of social inclusion, through a multiplicity of federal agencies and their respective roles in advocacy, PP policy development, procurement and program support funding and administration.

A step to help address these issues is to understand the status of women-owned SMEs within government procurement and the challenges deemed by these business owners to be most important. Using a representative sample of employer SMEs in Canada, the findings provide benchmarks to inform SME procurement policy and levels of engagement against which progress may be measured.

Consideration should be given to new models of bid assessment that incorporate social (gender equity) with economic goals, particularly within those sectors in which women business owners are significantly under-represented as SME suppliers. To do so, transparency and clarification of trade legislation that may or may not impede set-asides, preferential procurement and other coercive policies should be shared widely by governments with small business advocates and sector associations, to inform the "black box" of current SME procurement policy-practice divides. This includes research about gender of small business ownership and SME-friendly PP in the context of changing international trade legislation.

The study found that women-owned SMEs in the Professional, Scientific and Technical Services sectors were more likely to cite both "complexity of contracting process" and "long delays in receiving payment" as obstacles. Given women-owned businesses are typically smaller in revenue and productivity (Statistics Canada, 2019), SME procurement training should emphasize challenges such as cash flow management and strategies to mitigate finance gaps. Government procurement entities should review potential differences in payment cycles, by sectors. To do so, government bid protocols should enable certified vendors to voluntarily identify as women-owned small businesses, subject to validation, which could follow awarding of contracts (Lukiwski, 2018). Government procurement representatives should be deployed to counsel, train and develop women-owned small businesses throughout the contracting phases. This recommendation is consistent with the

United States Small Business Administration (SBA) Women-Owned Small Business Federal Contracting Program (Cornelius, 2018).

Another important finding is that government is not considered a potential customer by many women small business owners. To increase engagement, one initial step is to communicate with prospective SME suppliers about the types of government contracting opportunities suitable for businesses in the sectors in which women-owned SMEs are under-represented. Target intermediaries include women small business support organisations and industry associations, given evidence that membership in women business associations is correlated with ability of a firm to win government contracts (Gender Integration Plan, 2013).

The empirical findings suggest intersectionality of gender, immigrant status and other owner attributes (Dy *et al.*, 2017) with respect to government SME procurement. The findings confirm, for example, that a barrier facing immigrant entrepreneurs is “difficulty finding contracting opportunities.” Yet, immigrant entrepreneurs in Canada are particularly innovative and export-oriented (Neville *et al.*, 2014). Procuring officers must be sensitized through training about strategies with which to lever immigrant-owned SME capabilities, as well as gender and cultural influences that may be specific to particular communities. This infers a need for multi-language training regarding unconscious bias and further research (e. g. case studies).

From the perspective of small business owners, Goods Producers may prefer to sell existing products (“as is”) in international markets, rather than altering goods to meet technical and administrative specifications of government RFPs. For growth-oriented, women-owned small businesses, it may also be more efficient to sell goods internationally, given evidence of the incremental costs of doing business with government (Nicholas and Fruhmann, 2014) and expenses associated with time to manage government buyers’ expectations, develop technical proposals and administrative burden associated with managing and reporting on deliverables (Loader, 2015).

Lack of analytical capability of many government procurement agencies further limits development of evidence-based SME PP support policies (Nicholas and Fruhmann, 2014). The study findings demonstrate the need for advanced procurement analytics to inform the trade-offs between contracting efficiency and the mandate to increase the diversity of SME suppliers. This research also confirms that understanding the influences of gender in the context of PP is complex and multidimensional (Strohmeyer *et al.*, 2017). Without research studies that control for sector and other firm/owner attributes, for example, a higher likelihood of supplier activity among women-owned businesses in one sector can offset a lower likelihood of activity among women-owned businesses in another sector. When averaged across sectors, gender differences cancel out each other or obscure more granular gender gaps. This lends to disagreements among and between researchers, practitioners and policy makers. Lack of advanced and granular analysis also gives license to entrenched perspectives that reflect anecdotal aspects of individuals’ lived experiences. A consequence is misinformed policy and missed opportunities for effectively leverage PP as a tool to help achieve key UN Sustainability Development Goals.

The literature review and empirical findings suggests that clear definitional criteria are necessary to establish program eligibility and monitor policy interventions; construct comparable reporting metrics; reduce the likelihood of tokenism or fraud; and to avoid the façade of inclusion of women-owned SMEs within government contracting. To do so, governments and researchers are encouraged to adopt the criteria of “women-owned” firms advanced by the United Nations through UN Women, that is: at least 51% unconditional ownership by one or more women, unconditional control by one or more women over long-

term decision-making and day-to-day management and administration of the business operations; and independence from non-women-owned businesses. For remedial strategies to be effective, it is also necessary for governments to ensure a consistent definition of a women-owned business.

To inform policy, research is also needed to document experiences related to social identities (e.g. intersectionality of gender, race, ethnicity, immigrant status, etc.), psychological influences of decision-making (such as, entrepreneurial self-efficacy or confidence, persistence, and resilience) and SME support systems that impact bid frequency and bid success rates. The implications of employing inclusive definitional criteria within government procurement warrant further industry consultation.

The study extends the theory of role congruity to PP practices. Empirical findings suggest that gender norms differ across sectors. We found no gender differences among Good Producers or SMEs suppliers in the Professional, Scientific and Technical Services sectors. One explanation is that gender barriers that preclude sector entry (e.g. perceptions about STEM, credentialization, capital requirements, technical expertise) act as a filter among the (relatively fewer) women who enter and successful survive in these sectors. Hence, gender norms are less evidenced in the context of SME suppliers to government. Conversely, gendered norms may be amplified in sectors in which women are over-represented, such as Wholesale, Retail and Other Services. As noted, majority women-owned businesses in these sectors were less than half as likely to be SME suppliers as otherwise counterpart majority men-owned businesses. The sectors are also characterized by low barriers to entry. Gendered norms that act as catalysts to sector entry extend to business practices, such as intelligence gathering. This was evidenced in the ability of respondents to identify government procurement opportunities. Training interventions targeted at women business owners might challenge practices and assumptions with respect to intelligence gathering practices, including perceptions about government contracting opportunities. Such training should extend to procurement officers and policymakers in order that they too understand the nuances of gender barriers and norms that impacts SMEs and PP.

5.1 Study limitations

The limitations of using secondary analyses of data are well documented and apply here. For example, the *Survey on Financing and Growth of Small and Medium Enterprises* (SFGSME) sample was limited to “employer” SMEs (defined as SMEs with one or more employees). The findings reflect only the perspectives of “successful bidders” and do not capture SMEs that submitted bids but were not successful. Furthermore, the survey did not include questions about sub-contractor enterprises, data that would likely provide even more insights about SMEs in government supply chains. Accordingly, the study could not address sub-contracting strategies to increase the number of women-owned businesses on government contracts. Statistics Canada’s privacy protocols also limited the extent to which the research team could examine sub-groups of small business owners, such as visible minorities and Indigenous/Aboriginal persons.

It is also notable that much of the SME literature, as well as this study, define gender as a dichotomous (women/female, men/male) attribute. These criteria do not capture multiple genders or intersectional influences, including among underrepresented small business owners (Orser *et al.*, 2010, p. 936). Comparing women/female and men/males implicitly assumes within group homogeneity. This is yet another limitation of this study, one that fails to recognize that gender resides not only in gender identity and business decisions but also “. . . in social structure, power, class structure, and politics” (Orser *et al.*, 2010, p. 396).

Future research should employ a more inclusive definition of gender. Research is also required to inform about the obstacles to government procurement among the population of SMEs that were unsuccessful in their bids.

6. Conclusions

To the best of our knowledge, this is among the first studies to examine empirically gender of firm ownership and federal SME contracting, while accounting for owner and firm attributes. Sector, firm size and gender influences on SME PP were reported. The research establishes benchmarks and a standard of investigation that can be replicated in studies that seek to support gender equality and inclusion in PP. The findings present evidence to suggest that the Government of Canada employ women-focused *firm size* and *sector-specific* policies.

Access to owner/firm profile information is key to analysing and reporting on the economic and social outcomes of PP policy and practice. Without objective and accurate reporting, strategic procurement policies remain aspirational and costly to governments, industry and especially to women entrepreneurs. At the same time, gathering and analysing information requires significant effort, cost and expertise. Although some key parameters are currently available (e.g. firm size, sector of operations), the study confirms the need for additional information covering the lifecycle of startup and procurement process (e.g. awareness of procurement opportunities by gender of ownership, gender of bidders and subcontractors, contracting and post-contract experiences). The study illustrates that collaborative data analytics strategy across federal agencies, and in consultation with industry, non-profit organisations and academia, can help achieve research quality and reporting consistency, at relatively low cost.

As noted at the outset of this paper, gender-based analyses of public purchases and gender-responsive PP are new to many governments that seek to support the UN Sustainability Development Goals. Given increasing commitments to apply gender-based budgeting and analysis of policy-led SME procurement, development and publication of gender-based procurement protocols will assist stakeholders in achieving gender equality and other policy goals. Collectively, the study findings support a need for government to introduce training and advisory services for women small business owners to bolster awareness of contracting opportunities and assess the capacity and capability to tender and fulfill potential contracts. This infers creation of gender-sensitivity procurement training targeted to intermediaries, such federally-funded small business and innovation support intermediaries.

Sector-specific outreach strategies are recommended to increase the participation of women-owned small businesses in federal contracting. This recommendation is consistent with the American Women-Owned Small Business (WOSB) Federal Contracting Program. Within Canada, the approach might consider the results of this research, limitations of similar procurement programs (Orser *et al.*, 2018), legislated trade constraints (e.g. Kirkwood, 2016) and other unique features of federal entrepreneurial ecosystems.

Consistent with recommendations of UN WE Empower 2020 and Women2020, it is our hope that this study motivates governments to undertake more gender-disaggregated research to inform PP policies and programs. In doing so, we suggest collaborative advisory teams, comprised of experts in PP, women's enterprise, gender-based analysis, small business and economic development. This is to avoid misinformed and implicitly gendered assumptions about SMEs and PP, particularly given the absence of empirical studies to guide gender-responsive PP policies and practices.

Notes

1. For the purpose of this paper, public procurement (PP) refers to government acquisition of goods and services, including individual departments that provide services to citizens and industry (Patrucco *et al.*, 2017). Gender-responsive PP is defined as “the selection of services, goods and civil works that considers their impact on gender equality and women’s empowerment” (UN Women, no date) within public sector organizations obtaining “goods and services from a third party by way of a contract” (Telgen *et al.*, 2013, as cited by Loader, 2015, p. 103).
2. See Harris Rimmer (2017) for case studies of gender-responsive PP and SMEs; Patrucco *et al.* (2017) for a systematic review of literature on PP and SME strategies, Akenroye *et al.* (2020) for a systematic review of barriers to participation of SMEs in PP; and OECD (2018) for a review of rationales for using PP to support SMEs.
3. By exception, the Procurement Strategy for Aboriginal Business (PSAB) in Canada is a set-aside to “increase federal contracting opportunities and to gain access to the overall federal procurement process for Aboriginal businesses” (Indigenous and Northern Affairs Canada, 2019). This set-aside is administered by Indigenous and Northern Affairs Canada. Criticism of Canada’s only set-aside program provides insights for inclusive SME PP development. Criticisms include observations about decreasing contract revenue and volume by federal agencies; absence of a program performance coordinator; inappropriate program ‘success’ criteria (reporting based on set-standing offers and supply arrangements awarded versus “the amount of revenue generated through the set-aside procurement contracts”); and accuracy of reporting (Damm, 2018, p. 122). Advocates argue for an increase in the number of set-aside contracts awarded and threshold under which set-asides are considered.
4. Because each Canadian firm has a unique business identifier number, duplication was avoided.

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