



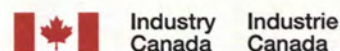
Gender and Export Propensity

by Barbara Orser, Martine Spence,
Allan Riding, Christine Carrington

*In partnership with the Government of Canada
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GENDER AND EXPORT PROPENSITY

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Acknowledgements:

This article is a product of a collaborative research partnership between the University of Ottawa Telfer School of Management and Industry Canada Small Business Policy Branch (SBPB). The research team would like to acknowledge the important contributions of John Connell (Director General, SBPB), Peter Webber and Brad Belanger (both formerly, SBPB) and analyst Miwako Nitani.

About the Women & Enterprise Working Papers

Canada is a global leader in women's entrepreneurship. In a multi-nation study of enterprise start-up and new firm creation, Canadian women are cited as among the most entrepreneurial among the OECD developed nations.¹ However, while the rates of business start-up are indeed impressive, on average, majority women-owned Canadian firms are significantly smaller, less profitable and less likely to grow compared to those firms owned by men. Within corporate Canada, women are under-represented in senior management. A key challenge for business owners, executives, educators and policy makers, therefore, is to proactively address the obstacles that stymie enterprise growth and the advancement of women into leadership roles.

Gender and Export Propensity is one of a series of information resources that examine gender differences in enterprise creation, management practices and firm performance. Each report in the *Women and Enterprise Working Papers* presents analysis of Canadian issues and challenges associated with creating and managing high-performance enterprises.

The foundation of the working papers follows several Canadian initiatives: the 2003 Prime Minister's Task Force on Women Entrepreneurs; the 2004 Sustaining the Momentum: An Economic Forum on Women Entrepreneurs;² and a 2006 *Journal of Small Business and Entrepreneurship* special issue about gender, training and entrepreneurship.³ Four primary themes emerge from these important initiatives: the significant and increasing contribution of women business owners to the Canadian and global economy; the ongoing absence of data about the participation rates and impact of women business owners in local, provincial and federal programs; the need to undertake and communicate research about women entrepreneurs; and a desire for better coordinated services, research and policy to support women entrepreneurs. It is anticipated that these working papers will inform management practices, training initiatives, research and policy targeted at supporting Canadian enterprises.

Readers are encouraged to share this report with other stakeholders. We are also pleased to add readers to the working paper mailing list. To receive future reports, please forward contact details to orser@telfer.uottawa.ca.

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¹ GEM [Global Entrepreneurship Monitor] 2006 Report on Women and Entrepreneurship and GEM 2007 High-Growth Entrepreneurship at: <http://www.gemconsortium.org/default.aspx>.

² See <http://www.ic.gc.ca/epic/site/sbrp-rppe.nsf/en/rd01308e.html> and <http://sprott.carleton.ca/forum/>.

³ See <http://www.ccsbe.org/jsbe/special.htm>.

GENDER AND EXPORT PROPENSITY

EXECUTIVE SUMMARY

Canadian and international research have documented that, compared to male counterparts, women-owned firms are less likely to export. This working paper explores gender differences in export propensity through two questions:

- Can gender differences in export propensity be explained by owner and firm-level attributes associated with firm performance? and
- Do women business owners experience unique barriers to international trade?

Empirical findings are based on a large-scale survey of Canadian SMEs (n=8,112). Employing a logistic regression framework, potential gender differences in export propensity and gender interaction effects are examined.

The relevance of this work stems from several roots.

- The role of gender in the international trade context remains virtually unexplored. Gaining a better understanding of the role of gender may further our understanding of SME exporting in general.
- Encouraging entrepreneurial firms to internationalize represents an economic development opportunity. Without accurate information about the influence of gender, opportunities for growth and international trade may be foregone, possibly leading to sub-optimal economic welfare. Understanding the influence of gender in the internationalization process of SMEs will also assist policymakers in developing relevant and targeted export promotion policies and programs.
- Most export studies are based on other nations' data. Moreover, the majority of SME export studies are based on non-representative samples such as government registries and programs and/or commercial and industry directories. Likewise, the preponderance of research has focussed on sectors such as manufacturing, high-tech and high-knowledge-based firms. Service-based firms, a sector historically populated with women business owners, are often excluded from research studies of SME exporting. Thus, it is difficult to generalize findings across the population of SMEs.

To examine the research questions posted, the study draws liberal and social feminist theory.

- *Liberal feminist theory*: This theory argues that gender differences in firm performance can be accounted for by systemic differences in structural factors associated within the firm (e.g., firm size, liquidity). Controlling empirically for owner and firm level differences should therefore account for gender differences in exporting.
- *Social feminist theory*: Scholars have criticized liberal feminist approaches, arguing that the rationale is predicated on an "entrepreneurs-as-male" perspective and that it fails to recognize that gender influences reside not only in the owner and one's

entrepreneurial self-perception and decisions, but in social structure, power, class structure and politics. Hence, social feminism argues that the internationalization of SMEs is not gender neutral. Building on such arguments, a second set of study hypotheses are advanced.

Summary profile of Canadian SMEs exporters

- The study found that majority women-owned firms are underrepresented among SME exporters. Approximately 17 percent of Canadian small- and medium-enterprises are majority women-owned (with ownership between 51 and 100 percent). Among Canadian SME exporters, only 12 percent of firms are majority women-owned.
- Majority female-owned firms were less likely to seek growth, report less management and financial experience and operated smaller, less profitable firms and firms concentrated in service sectors. With the exception of growth intention, gender differences were systemic across domestic firms and exporters.
- Male and female owners did not differ to a statistically significant extent with respect to language, immigrant status, and expenditures on R&D.
- All other determinants held constant, larger firms, owners whose first language was not French, new Canadians, owners who aspire to grow the firm, firms in certain sectors (manufacturers, wholesale/retailers, professional services and technology-based firms), firms with R&D expenditures greater than 20 percent of investments and urban firms were significantly more likely to export. Non-significant determinants of exporting include whether or not the owner is a member of a visible minority group, whether or not the owner is an informal investor and whether the firm is a new firm.

Estimation of Gender Effects

- Gender differences in export propensity are, in most part, associated with systemic differences in firm performance. Gender differences in the operational attributes of the firm explain most, but not all gender differences in export propensity.
- The additional explanatory power of the gender interaction terms is also significant. The significant interaction terms were between *gender and sector* and *gender and immigrant status*.
 - As such, the impact of gender on export propensity appears to differ by sector.
 - Firms owned by women immigrants appear to be more likely to export, all other export determinants held equal.
- The subsequent addition of gender alone as a direct explanatory variable (which presumes an additional direct effect on exporter status after allowing for interaction effects) added no further significant explanatory power to the model. As such, no

gender interaction effects were observed between gender and owners' growth intention and gender and R&D investment. Majority women-owned Canadian firms were no less likely to invest in R&D.

- With respect to all firms SME surveyed (with no distinction by gender of ownership), on average, exporters are larger firms, located in urban settings, operating in manufacturing, wholesale/retail, professional services and technology-based sectors and reporting higher than average investments in R&D. Owners were more likely to report that their first language was not French, an immigrant (Canadian resident of less than 5 years) and that they aspired to grow the firm. Non-significant determinants of exporting include whether or not the owner is a member of a visible minority group, whether or not the owner is an informal investor and age of firm.

Managerial implications

- This study suggests gender differences in export propensity are attributable primarily to gender differences in organizational performance. However, gender differences in export propensity were not fully accounted for by firm and owner attributes. As such, the study lends support to qualitative and small sample studies that attribute gender differences in export propensity to gender bias in the marketplace (Orser *et al.*, 2004; Riddle and Foundation for Canadian Women Entrepreneurs, 2000).
- The study's results suggest that growth-orientated, women business owners might consider the value of exporting as a means to enterprise growth, regardless of firm age or sector. These results may encourage women business owners, who have hitherto been reluctant to export due to anticipated gender-related export barriers, to consider exporting.

Implications for research

- Building from a liberal feminist paradigm, an extension of this study is to examine owner and firm attributes, including gender, that are associated with other modes of export (e.g., indirect exporting, joint-ventures, contracting, franchising) and other international transactions such as importing, and on-line/e-based transactions.
- Compared to other OECD nation members, the low percentage of Canadian SMEs that engage in export (8 percent) is concerning. Given the relatively small domestic Canadian market and geographic proximity to the United States, (Canada's dominant trade partner), the literature is not clear why owners of Canadian SMEs are reluctant to engage in international trade. Hence, further research is required to understand trade impediments. A starting point may be the social-psychological influences associated with the export decision-making (e.g., anticipated outcomes, who influences the decision to export and perceptions about access to requisite resources).
- These findings also call for theoretical discussion about the internationalization process of SMEs from a feminist perspective. As these results indicate, it is time to develop theoretical models that consider organizational structures, values exchanges and cognition, and processes that capture the influences of power relationships and social structure. Given the infancy of this area of inquiry, qualitative research of export-orientated female business owners is needed.

Implications for export programs and policy

- The observation that gender differences in export propensity is accounted for by differences in firm performance suggest that remedial economic strategies focus on development of the firm (e.g., helping to make women-owned firms "export ready"). The work also points to the need for gender-specific or gender-sensitive training, programming that encourages women business owners to reflect upon potential gender barriers and appropriate response strategies.
- This work also points to the importance of owners' growth intention in the export model. As such, business development programs are encouraged to showcase the benefits of value of exporting (e.g., exporting is linked to organizational growth and revenue through opportunities to leverage assets, increased market exposure and acquisition of knowledge and customers).
- Export promotion or communication strategies might focus the opportunities to leverage women's business social networks and professional associations within ethnic communities in North America and across international markets.
- Training personnel and trade officers should be made aware of the economic contributions of both service-based firms and women exporters. To date, much of trade support, export policy and related research has focussed on manufacturing and technology-based firms. This is understandable given that export propensity has historically be highest for firms in these sectors. However, these data indicate that professional service firms represent the vast majority of Canadian businesses. Even though relatively fewer service firms export, the sheer size of the service sectors means that there are in fact a higher number – in absolute terms – of services exporters than of manufacturing exporters. It is also noteworthy that this study found no difference in export intensity across sectors. This work also documents the economic contributions of women exporters, a key resource for Canadian economic development.
- Finally, these results may serve to remind policy makers about the need to consider how gender is embedded in export policy and stimulation programs. Export programs are not gender-neutral. For example, sector-specific export programs targeting manufacturing and technology firms by market composition, on average, support male-dominated sectors. Program criterion that specifies size thresholds is also gendered, given that majority women-owned firms are comparatively smaller. To avoid gender-bias in export program criteria, eligibility criteria should be sensitive to the association among gender, sector and firm size. All programs (e.g., trade missions, industry or sector funded initiatives) should report participation rates by gender composition of the management team. Finally, Canadian trade commissioners can play a pivotal role in promoting Canadian women business owners in international markets.

GENDER AND EXPORT PROPENSITY

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INTRODUCTION

International trade is a foundation of the global economy and SMEs comprise the majority of firms that sell goods and services abroad (Halabisky, Lee and Parsley, 2005). This research study examines attributes of SME exporters, with particular reference to the role of gender of ownership because, compared to firms owned by men, female-owned businesses are less likely to export (Deng, Hassan and Jivan, 1995; Grondin and Schaefer, 1995; Canadian Bankers Association, 1996, 1997, 1998; Carrington, 2004). Differences in export propensity may be attributed to performance differences in male- and female-owned firms; however, even after accounting for systemic differences in organizational performance, gender differences may remain. To the extent that this is true, majority female-owned firms may face barriers that are less binding for firms owned by males. Accordingly, the objective of this study is to examine the reasons that gender affects export propensity.

The relevance of this work stems from several roots. First, the role of gender in the international trade context remains virtually unexplored. Gaining a better understanding of the role of gender may further our understanding of SME exporting in general. Hence, scholars have called for more empirical studies to examine SME exporting (Lefebvre and Lefebvre, 2000; Andersson and Wictor, 2003; Zahra, 2005) and this work responds to these appeals. Second, encouraging entrepreneurial firms to internationalize represents an economic development opportunity. Without accurate information about the influence of gender, opportunities for growth and international trade may be foregone, possibly leading to sub-optimal economic welfare. Understanding the influence of gender in the internationalization process of SMEs will assist policymakers in developing relevant and targeted export promotion policies and programs.

Third, most export studies are based on US data. It is not clear if these findings are relevant to the contexts of other nations. As Katsikeas, Deng and Wortzel (1997: 54) have cautioned, "...'naïve generalizations'...to exporting frameworks in other countries might be dangerous and impact deleteriously upon export marketing theory development." Moreover, the majority of SME export studies are based on non-representative samples such as government registries and programs (Kirpalani and Macintosh, 1980; Beamish and Munro, 1986; Calof, 1993; Orser, Riding and Townsend, 2004; Halabisky *et al.*, 2005) or commercial and industry directories (Beamish *et al.*, 1986a; Bramish and Munro, 1986b; Baldwin and Gu, 2003; and Bagghi-Sen, 1999). Likewise, the preponderance of research has focussed on sectors such as manufacturing, high-tech and high-knowledge-based firms. Service-based firms, a sector historically populated with women business owners, are often excluded from research studies of SME exporting (Lefebvre and Lefebvre, 2000; Lee and Haas, 1996). Thus, it is difficult to generalize findings across the population of SMEs (Lefebvre and Lefebvre, 2000; Reuber and Fischer, 1998; Dhanaraj and Beamish, 2003).

The study's findings have important implications for management practice. If gender differences in firm performance are primarily associated with operational efficiencies, growth-orientated female entrepreneurs may be best advised to emulate the operational practices of male counterparts. Alternatively, if performance differences are associated with broader social influences or systemic market bias, social policies would be suggested. For example, advising women entrepreneurs to emulate male operational traits may be counterproductive and undermine potentially advantageous "ways of doing business". Such findings also have

implications for export programs and policy. If gender differences are primarily associated with operational attributes, remedial strategies would best be focused on development of the firm (e.g., helping to make women-owned firms "export ready"). If, however, gender differences remain unexplained by operational level performance, export stimulation programs might be best targeted at communicating *to the market* the importance and/or contribution of women-owned export firms and responding to market impediments such as sexist attitudes and other barriers to international trade described above.

The review of literature, which follows presently, explores two feminist theories: liberal and social feminism. These theories inform the discussion as an explicit objective of feminist research is to understand why and how gender influences social outcomes. To situate a feminist rationale within the export context the paper also references resource-exchange theory, a well received theory that seeks to explain the internationalization process of SMEs. Within this discussion, the study's hypotheses are advanced. The research methodology is then described, followed by a presentation of empirical findings. The study finds evidence that, indeed, gender has a significant influence on export propensity. The way in which gender influences export is that it mediates the effects of other determinants of exporting. After accounting for these interactions, there is no statistically significant residual direct impact on gender on the likelihood of exporting. The paper closes with a discussion about the research findings, questions that may guide further theory, implications for public policy and study limitations.

REVIEW OF LITERATURE

Much of our current understanding of the internationalization process of SMEs is drawn from resource-exchange theory. According to this premise, the internationalization of SMEs is based on aggregate accumulation of owner- and firm-level resources, resources that include managerial acumen, financial capital and technological capacity (Penrose, 1959; Delmar, Davidsson and Gartner, 2003; Oviatt and McDougall, 2005; Eriksson, Johanson, Majkgard and Sharma, 1997; Reuber and Fischer, 1997; Dhanaraj and Beamish, 2003). SMEs seek to enhance their resource base and mitigate transaction costs by exporting and partnering in foreign markets and in doing so, offset market risk (Reynolds, Storey and Westhead, 1994; Zacharakis, 1997; Ruzzier *et al.*, 2007). Resource-exchange theory is mute however with respect to the influence of gender on the internationalization of SMEs. To understand the complex influence of gender in the internationalization of SMEs, scholars have been encouraged to look beyond neo-classical economic rationale to inform discussion about organizational performance (de Bruin, Brush and Welter, 2006, 2007; Ahl, 2006). Two theoretical rationales, liberal and social feminist theory, are useful constructs to help explain why majority female-owned firms may be less likely to export compared to their male counterparts.

Liberal feminism

Implicitly embedded within the resource-exchange perspective is the “under-performance” hypothesis of women’s entrepreneurship. “...female entrepreneurs tend to under perform relative to men when the data is examined at the most aggregate level.” (DuRietz and Henrekson, 2000: 1): The under-performance perspective has been described by women’s entrepreneurship and feminist scholars as liberal feminism or feminist empiricism (Fischer *et al.*, 1993; Ahl, 2006). It maintains that gender differences in performance outcomes (e.g., profit, growth, size) are a function of organizational inputs. In other words, gender differences in organizational performance can be attributed to individual ability, actions and choices. In the context of enterprise development, liberal feminism suggests that gender differences in firm performance, where export is a performance outcome, can be accounted for by systemic differences in structural factors associated with the firm (e.g., firm size, liquidity).

Furthermore, scholars have argued that access to, and the utilization of, resources such as financial capital, managerial acumen and education are themselves inherently gendered. For example, Fischer *et al.*, (1993) note: “Disparity in achievements between genders is attributed to the differences in social opportunities presented to men versus women. Women, being deprived of access to various forms of education and experience, are argued to be less likely to realize their full potential.” More recently, Ahl (2006: 596), in her analysis of the multiple discourses used to portray women’s entrepreneurship, writes that from a liberal feminist lens “Men and women are seen as equally able and any subordination of women must depend on discrimination or on structural barriers, as for example unequal access to education. Such barriers can be partly or totally eliminated.” It is, therefore, important to understand the extent that internationalization of women-owned firms is constrained by individual level barriers that may be mitigated.

Empirical studies predicated on liberal feminism increasingly employ input/outcome models of performance, simultaneously controlling for systemic gender differences in owner

and firm attributes. Overall, this growing body of empirical evidence tends to support the under-performance hypothesis, that gender differences in performance are explained by systemic differences in owner and firm input attributes (Fasci and Valdez, 1998; Chell and Baines, 1998; Watson and Robinson, 2003; Collins-Dodd, Gordon, and Smart, 2004; Johnsen and McMahon, 2005). For example, employing a reward-to-variability ratio (profit / standard deviation of profit), Watson and Robinson (2003) report no gender differences in performance provided performance is adjusted for risk. Employing estimates of financial leverage (total liabilities as a percentage of total funding), time to business, legal organization to outputs (financial performance, ROE, return on total assets), and growth (in employee numbers, sales assets), Johnson and McMahon (2005) also report no statistically significant gender differences in financial performance, business growth and return on owner's equity. Statistically significant differences in return on total assets were reported (females outperform males).

Canadian studies present mixed results. Fischer (1992: 8) initially reports that differences between men and women with respect to age, experience, education did not account for differences in firm performance. However, having controlled for these elements of managerial capital, "...none of the variables studied accounted for [performance defined as] the greater number of employees, higher sales, and greater sales per employee characteristic of men's firms." Fischer *et al.*, (1993: 152) later report: "Regressions undertaken to examine predictors of a range of business performance indicators suggest that women's lesser experience in working in similar forms and in helping to start-up may help to explain the small size, slower income growth and less sales per employee of their firms." Similarly, when Orser (1997) employed a composite estimate of managerial capital to 'high' and 'low' growth performance firms, results indicated that among young firms, less diversity of management experience, intention not to expand, and being female were associated with low growth. Conversely, diversity of management experience, being male, and an intention to grow were associated with high growth. Papadaki and Bassima (2002: 43) also report no unexplained gender effects on firm growth performance, having controlled for firm-related factors (e.g., age, rate of growth, sector, level of innovation, regional growth strategies, location) and owner-related factors (e.g., growth motive and networks).

Consistent with liberal feminist theory, research indicates that Canadian women business owners are less likely to bring related foreign market experience to the firm (Reuber and Fischer, 1997; Orser, 1997). These observations are relevant given that management experience and foreign market orientation are associated with exporting (Reid, 1981; Ruzzier *et al.*, 2007). As Reuber and Fischer (1997: 807) note, characteristics found "... (though not invariably) to predict propensity for, or success in, exporting include: the extent to which the manager had engaged in foreign travel; the number of languages spoken by the manager; and whether the top decision maker was born abroad, lived abroad or worked abroad." They also report that Canadian management teams with international knowledge and experience are more likely to engage foreign partners and have fewer delays in foreign sales after start-up.

Conversely, among a sample of seven high achievement ("award winning") women exporters, none reported that being a woman created additional challenges for them either in international trade or in maintaining work/life balance (Reavley, Lituchy and McClelland, 2005). A liberal feminist interpretation of these findings is that there are few, if any, gender differences among those owners that have acquired the resources requisite to exporting. This may indeed be the case for some women exporters. For example, an earlier Canadian study of

165 women exporters and 89 export planners report that 24 percent of respondents indicated that gender played no role in the management practices of their firms (Orser *et al.*, 2004).

In summary, liberal feminism suggests that gender differences in export propensity are associated with the systemic gender differences in owner- and firm-level attributes that are also associated with firm performance. Hence, according to this paradigm, controlling empirically for owner and firm level differences should account for gender differences in exporting. While it is beyond the scope of any one study to examine the multitude of owner, firm and environmental constructs associated with “entrepreneurial internationalization” (Jones and Coviello, 2005), the literature is consistent in reporting that financial measures such as size (defined in terms of revenue and employment) are associated with export propensity. Similarly, important owner-level resources include managerial and financial experience as well as international orientation. It is hypothesized, therefore, that gender differences in export propensity can be accounted for by differences in firm performance and associated owner attributes:

H1: Gender differences in export propensity can be accounted for by differences in firm size.

H1a: Majority female-owned firms are smaller than firms owned by male counterparts.

H2: Gender differences in export propensity can be accounted for by differences in management experience.

H2a: Female business owners bring to the firm less management experience compared to male business owners.

While liberal feminism provides one perspective to explain gender differences in organizational performance and hence, export propensity, some scholars have criticized this approach. According to Brush (1992), the rationale is predicated on an “entrepreneurs-as-male” perspective. Belenky, Clinchy, Goldberger and Tarule (1986) write: “If and when scientists turn to the study of women, they typically look for ways in which women conform to or diverge from patterns found in the study of men.” According to Ahl (2006: 598):

“It could be argued that this is because entrepreneurs have traditionally been men, but several scholars maintain that women entrepreneurs were made invisible in the research as well as in the media (Baker *et al.*, 1997; Sundi, 1988). Other authors discuss male gendered measuring instruments (Moore, 1990; Stevenson, 1990), gendered attributed to entrepreneurs (Nilsson, 1997), or male-gendered theory (Bird & Brush, 2002; Chell, Haworth, & Brearley, 1991; Mirchandani, 1999; Reed, 1996).”

Hence, within the literature women business owners are typically described as being or having “less”, “smaller” and/or “fewer” (e.g., management experience, education, access to resources, risk propensity). An alternative theoretical rationale to explain gender in the context of the internationalization of the firm is social feminist thought. The following section outlines the tenets of social feminism and related study hypotheses associated with export propensity.

Social feminist theory

To address the above criticisms, social feminism suggests that men and women are essentially different (Fischer *et al.*, 1993; Reuber *et al.*, 1997; Johnsen and McMahon, 2005). Examining gender in organizational performance by comparing female to male business owners fails to recognize that gender influences reside not only in the owner and one's entrepreneurial self-perception and decisions, but in social structure, power, class structure and politics. Social feminist suggests that the concept of 'gender' is socially constructed and reflected in the social practices, organizational structures and hence, owners' perceptions. Drawing on the socialization paradigm, Ahl presents a social feminist description of women entrepreneurs (2006:596), where:

"...gender is a result of upbringing and social interaction, and it varies in time and place. Gender is something that is "done", "accomplished", or "performed" rather than something that "is". Any seeming stability depends on the recreation or repetitive performance of gender (Butler, 1990, 1993)."

Social feminism provides, therefore, an alternative theoretical perspective from which to examine the association between gender and the export process. In the current study context the theory extends our analysis to consider the individual's growth orientations, sector engagement and culture. The theory implies that analytical frameworks should explicitly consider the "...ways in which structures support, perpetuate and even create gender differences, rather than merely reflecting on the orientations of those within them" (Mirchandani, 1999: 227). Hence, an owner's gender is not distinct or separate from management decision-making and the internationalization of SMEs is not gender neutral. Drawing on the social feminist perspective, gender influences in export must be examined from within social relationships and structures that confront female business owners. For example, Orser *et al.* (2004) report that 60 percent of female business owners indicated that gender played a role in the management practice of their firms. In Orser's study of the export relationship, the principal gender issues were described as cultural and experiential. Cultural and interpersonal concerns included the view that women business owners were not taken seriously; perceived a lack of respect by (foreign) male business owners; dealt with businessmen who explicitly refuse to do business with women; dealt with bravado, physical gestures and chauvinism; had clients who verify the female business owner's decision through a male member of staff; had clients who assumed that the business was owned by men; had differences in management experience and style of doing business; and had different or more limited professional networks. The researchers also reported that gender aspects of export management were generalized across sector, export readiness (e.g., comparing exporters and export-ready firms), and other descriptive variables including size and age of firm, owner's marital status and presence of dependents.

It is expected, therefore, that the liberal feminist rationale does not adequately capture the extent to which gender is embedded in the export experience. Hence, benchmarking female-owned businesses performance against male-owned firms fails to adequately capture the complex gender influences embedded with demographic and firm level attributes. Building upon these arguments, a second set of study hypotheses are advanced, where:

H3: After controlling for gender differences in firm performance, gender differences in export propensity remain.

Drawing on social feminist arguments, the above hypothesis can be partially explained by the ways in which women view enterprise creation and growth. Gender is further embedded within occupational engagement, ethnicity and residency status. Hence, in this study several key influences relevant to the internationalization of SMEs are considered: owners' growth orientation, immigrant status and ethnicity, sector structure and engagement in technology, research and development (Jones and Coviello, 2005).

Growth orientation

Research reports that owners' growth orientation is a primary influence within the process of internationalization (Miesenbock, 1988; Reid, 1981; Westhead, Binks, Ucbasaran and Wright, 2002 as cited by Ruzzier *et al.*, 2007). The relevance of growth orientation in the current study's context is particularly appropriate given that Ruzzier and colleagues point out that owner's aspirations shape a firm's strategy (Davidsson, 1989; Wiklund *et al.*, 2003; Morris, Mityasaki, Watters and Coombes, 2006). For example, Heinonen *et al.* (2004) and De Clercq (2005) report that not all small-business owners/managers are interested in international growth, but that growth-oriented owner/managers are more likely to develop a substantial presence in the international arena.

At the same time, empirical and qualitative studies have suggested that many, but not all, women seek outcomes associated with firm ownership that differ from male counterparts, differences that may appear as if female business owners are less growth-oriented (Rosa and Hamilton 1994; Cliff, 1998; Crant, 1997). For example, in their review of the literature about the influence of gender on owners' growth orientation, Orser and Hogarth-Scott (2003:287) write:

"Gender and feminist literature suggest that socialization may result in differences between men and women with respect to values, role investments, reward structures, "ways of knowing" (or knowledge), and expectations (Belenky *et al.*, 1986; Moss Kanter, 1977; Schwartz, 1992; Buttner, 2001). The research on women in management suggests that these differences are played out in reward mechanisms, perceptions, career advancement opportunities, values, and management role models (Brush, 1992; Buttner and Moore, 1997; Carter and Cannon, 1988). Therefore, it follows that women may make decisions related to the growth of their businesses using a different process than men do, or by weighting risks and rewards differently from men. Moreover, these studies suggest that women and men hold differing attitudes about the outcomes of growth, work within different reference groups, have different levels of start-up resources, and face different challenges in terms of marshalling the resources necessary for business growth." (Orser and Hogarth-Scott, 2003: 287).

Hence, given a preponderance of studies that suggest gender differences in owners' growth intentions, it is hypothesized that:

H3a: Female business owners are, on average, less likely to express the intention to grow the size and scope of their business.

Residency (immigrant) status

Social feminist theory further argues that gender and power stratifications extend across other demographic attributes. Michandani (1999: 233) argues:

"... along the lines of class, sexuality, race or age. Morokvasic, for example, notes that immigrant women are frequently constructed as passive and dependent victims and yet

form enterprises which require dynamism and initiative. While women face barriers because of their gender, their status as foreigners and their ethnicity, Morokvasic notes that they rely on family members, kin and community to set up and operate their businesses. These resources, however, are differently structured for female and male entrepreneurs... It is important therefore to understand and explore the connections between gender and race/ethnicity in the experience of entrepreneurship."

Hence, social influences are embedded in immigrant or residence status of business owners. Furthermore, this influence is seen to differ by gender. It is not yet clear, however, if residency (immigrant) status are "pull factors" associated with cultural, geographic and market knowledge or "push factors" such as a lack of domestic opportunities (e.g., double or triple jeopardy for visible minority/immigrant women). For example, Beauchesne (2007) reports that many new Canadians, and in particular women, are overqualified for their current positions relative to those in most other industrialized countries. New Canadians may indeed be responding to two market pressures: pull (e.g., foreign market knowledge) and push (e.g., lack of appropriate domestic opportunities) incentives.

Given the paucity of research about gender and residency (immigrant) status, it is still unclear the ways in which gender is embedded within the export process. As such, no directional association is suggested. Hence, the null hypothesis to be tested is:

H3b: Immigrants (new Canadians) are relatively more likely to export.

Sector structure and engagement in research and development

Social feminism also presents a rationale to explain sector or occupational segregation (Peitchinins, 1989; Mirchandani, 1999) and the ways in which gender is embedded in innovative activities such as research and development. Gender differences in sector engagement is relevant given studies that report exporting to be more common within manufacturing, technology, and intellectual-intensive (knowledge-based) firms (Beamish and Munro, 1986; Cavusgil, 1984; Baldwin, 1994; Seringhaus, 1993; Therrien and Doloreux, 2007). Conversely, like other OECD nations, Canadian women business owners are largely concentrated in service industries (Carrington: 2004: 3): "Knowledge-based industries and manufacturing were two sectors that did not appear to attract as many women entrepreneurs. These two sectors, which are key sectors driving Canada's growth and innovation, attracted only 6 percent of all women entrepreneurs in 2001." More recently, Carrington (2004) reports that majority women-owned business accounted for approximately 17 percent of all SMEs – but only 13 percent of knowledge-based firms were majority female-owned.

Peitchinins (1989) argues that sector or "occupational crowding" occurs where men are more likely to be engaged in primary positions and sectors (for example, those with protective unions and internal rules) and women are likely to be employed in "secondary" markets (for example, social services, health care, education). And within many sectors, women are socialized to assume supportive rather than leadership roles. Furthermore, innovative activities are associated with increased export propensity (Kirpalani and MacIntosh, 1980; Beamish, Craig and McLellan, 1993; Therrien and Doloreux, 2007). For example, Cavusgil (1984) and Baldwin (1994) suggest a high incidence of exporting among producers or intensive users of technology and that technology and other knowledge-based firms rely heavily on foreign markets, seek global markets, and are export-dependent (see also, Beamish and Munro, 1986b; Seringhaus, 1993). According to Statistics Canada (2006: 113) "In 2004, just 21% of

professionals in [natural sciences, engineering and mathematics] were women, a figure that has changed little since 1987 when women accounted for just under 20% of professionals in these highly technical fields.” The implication of an absence of women within the advanced technology sectors (e.g., natural sciences, engineering and mathematics) is that comparatively fewer women retain the educational and professional acumen to engage in traditional research and development. Linking to the above discussion with previous comments about entrepreneurial orientation and intention, Duxbury, Dyke and Lam (2000) suggest that among the relatively few women employed within high-tech sector, significantly fewer express the intention to pursue entrepreneurial opportunities compared to male counterparts.

Gender differences in occupational and sector engagement, observations that women are less likely to be engaged in knowledge-based or technological activities, as well as preliminary evidence that suggests women within the high-tech sector are less likely to pursue entrepreneurial activities imply a gender influence across sector and investment or engagement in research and development (a proxy for technology). Sector stratification and R&D investment are, in turn, associated with export propensity. Hence, it is hypothesized that:

H3c: Female businesses owners operate within sectors that are less likely to be associated with exporting compared to male counterparts.

H3d: Majority female-owned firms are less likely to invest in research and development compared to firms owned by male counterparts.

In summary, social feminism suggests that gender differences in export propensity will remain even after controlling for gender differences in owner- and firm-level attributes associated with organizational performance. These gender differences in export propensity are exemplified through owners’ growth orientation, residency (immigrant) status, sector stratification and engagement in research and development. The next section of the report described the research methodology employed to examine the above study hypotheses.

METHODOLOGY AND DATA

Methodological approach

At issue in this work is the way in which the gender composition of the ownership team impacts export propensity in SMEs. Both social and liberal feminism postulate that gender impacts organizational performance. Liberal feminism maintains that gender is a moderating variable and that its effects on exporting act through firm size and managerial expertise. Social feminism suggests that even after accounting for the moderating effects of gender, a residual gender impact remains. To assist in examining the influence of gender on SME exporting, Fischer *et al.* (1993) provide useful guidelines. They suggest that empirical evidence comparing women and men should be drawn from the same population, at the same time, otherwise situational or temporal factors may invalidate comparisons and that if hypothetical gender and performance differences are to be tested, performance as well as independent measures differentiated characteristics in a single study are necessary. Furthermore, if evidence of gender differences are argued (relative to business performance), that the study method should access both opportunities to which women are thought to lack access and the aspects of business performance which are thought to be affected. Hence, to test for potential gender differences, a large-scale survey and moderated multiple regression framework is employed.

The premise for moderated multiple regression is that, if regression equations relating to the outcome (exporting activity or not) and the independent variables (predictors of exporting activity) are indistinguishable between (gender) groups, then no moderating effect is present. The generic framework for moderated multiple regression is described by Aguinis (2004) as:

$$\hat{Y} = a + b_1 X + b_2 Z + b_3 X \cdot Z \quad (1)$$

where Y is the dependent variable; X is a vector of independent predictor variables (potential factors in export activity such as size, sector, etc); Z is the moderator variable (here, gender composition of ownership team); and $X \cdot Z$ is a product term carrying information about the moderating effect of Z (i.e., interaction between X and Z). The impact of the interaction terms may be assessed two ways. First, b_3 is the estimated difference between the slope of Y on X between the moderator group coded as 1 (female-owned) and the moderator coded as 0 (male owned) and the statistical significance of b_3 may be tested from its t-statistic. A statistically significant value of b_3 connotes that the grouping variable (gender) moderates the action of the independent variable. In addition, an F test may be used to test for the significance of the incremental explanatory power associated with adding interaction term(s) (for example, $X \cdot Z$ or Z) to the base model. To employ this model, metrics are required regarding export activity (the outcome variable), determinants of export activity (X), and the gender composition of the ownership team (the moderator variable).

Data collection

The work draws on data from a stratified survey conducted in 2005 regarding the financing and export experiences of Canadian small- and medium-sized enterprises. The survey uses the calendar year 2004 as the reference year. The population of Canadian SMEs comprises approximately 1.3 million enterprises from which a sampling frame of 34,509 SMEs was randomly selected from the Business Register (the Business Register is a Government of Canada administrative database constructed from business number records assigned and collected by the

Canada Revenue Agency that contains the universe of enterprises in Canada). In selecting the sampling frame the following types of firms were excluded: enterprises with 500 or more employees; enterprises with over \$50 million in annual gross revenues; non-profit enterprises (for example schools, hospitals and charities), co-operatives, joint ventures, municipal/federal government bodies and subsidiaries. Such companies were also screened out at the data collection phase.

Data collection was undertaken in two phases. In phase 1 computer-assisted telephone interviews were administered that gathered firm demographic data and information concerning the businesses' latest financing request and considerable additional firm- and owner-specific data — including export activity. The sample was stratified to ensure minimum numbers of responses from particular regions, sectors, and firm size categories with simple random sampling within strata. Of the 34,509 firms in the sampling frame, 10,759 were out-of-scope because they were either screened out as ineligible, out of business, or un-locatable. Of the remaining 24,750 enterprises, 13,042 interviews were obtained. Data were cleaned and outliers removed resulting in 12,047 useable cases. To minimize response burden a randomized skip pattern was employed in the survey such that complete data were available for 8,112 respondents. In phase 2, a fax-based questionnaire was employed to collect detailed financial information from income statement and balance sheet data. These were completed by 3,141 of the 8,112 respondents to the initial phase of data collection.

The best means of reducing non-response bias is by achieving a high response rate; here the response rate of 49 percent of in-scope enterprises mitigates non-response bias. Because most firms are small and the primary owner was the interview subject, the survey is also relatively immune for key informant problems. To address partial non-response bias on returned questionnaires, nearest neighbour imputation was used to replace missing values from nearest donors defined by attributes including size and sector.

Dependent Variable Definition. Export propensity is defined as the proportion of businesses whose owners reported that the business sold or exported its products or services outside Canada. To determine export propensity, respondents were asked: "Did the business sell or export any of its goods and services outside Canadian during the past 12 months?" Table 1 reports exporter status by gender of ownership and in total, revealing that an estimated eight percent (3.6 + 4.3 percent) of Canadian SMEs exported goods or services during 2004. Export intensity is defined as the ratio of revenue from exports to total sales revenue; therefore owners of firms that reported exports were also asked, "What percentage of your revenues came from outside of Canada?" Exporters derived an average of 33 percent of sales revenues from exports; however, a high proportion of exporters derived a relatively small proportion of revenues from exports (see Table 2). Arguably, some of the firms that exhibited low export intensity may not truly be active exporters because cross-border sales may have been one-off occasions, periodic responses to unsolicited orders, etc. Accordingly, a stricter definition of SME exporter was used by defining as "intensive exporters" those firms that derived *more than 25 percent of sales revenues from export sales*, a criterion used in the export-focused studies of Knight (1997) and of Andersson and Wictor (2003). According to this definition, 40.8 percent of exporters were deemed "intensive exporters" and for almost one-half (44 percent) of exporter SMES, exports accounted for less than 10 percent of revenues.

Table 1: Export Activity by Gender of Ownership

Percentage of ownership by gender	Majority Male-owned	50/50	Majority Women-owned	Total
Number of Cases				
No export revenue	4,517	1,442	920	6,879
≤ 25% of revenues	478	116	74	668
> 25% of revenue	419	86	60	565
Total	5,414	1,644	1,054	8,112
Percent of Sample				
No export revenue	55.7	17.8	11.3	84.8
≤ 25% of revenues	5.9	1.4	0.9	8.2
> 25% of revenue	5.2	1.1	0.7	7.0
Total	66.7	20.3	13.0	100.0
Implied percent of population				
No export revenue	57.6	18.4	16.0	92.0
≤ 25% of revenues	2.9	0.8	0.6	4.3
> 25% of revenue	2.4	0.8	0.4	3.6
Total	63.0	20.0	17.1	100.0

Table 2: Distribution of Export Intensity

Export Intensity (% of Revenues)	Proportion of Exporter Firms in Sample	Estimated Proportion of Exporter Firms in Population
1 – 10%	44.2	44.2
11 – 20%	8.1	8.1
20 – 25%	2.1	7.9
26 – 50%	17.3	11.5
> 50%	28.3	28.3

Moderator Variable Definition. To report on gender of ownership, respondents were asked: "What percentage of the business ownership is held by women?" Firms were then classified into three groups based on gender of ownership: firms in which women were majority owners (17.2 percent); firms where ownership was divided equally (20.1 percent); firms where men were majority owners (62.7 percent). Table 1 presents export intensity by gender of ownership. Chi-square analysis of this contingency table reveals a statistically significant (p -value < 0.000) correlation between gender of ownership and exporting.

To examine owner's growth intentions, respondents were asked: "During the next two years, do you intend to expand the size and scope of your business?" Firm innovation was estimated using expenditures on research and development as a percentage of total investment. Respondents were asked: "In an average fiscal year, what percentage of the business total investment expenditure is devoted to research and development for products, services and processes?" Finally, respondents were asked to indicate: "Was 50% or more of the ownership in

the business held...by Aboriginal persons and...by persons who are non-Caucasian in race or non-white in color other than aboriginal persons?"

Independent Variable Definitions. Table 3 shows summary statistics of firm and owner attributes for a variety of potential predictor variables. These variables reflect previous research. For a summary see Etemad (2004). To estimate foreign market orientation, the study employed two proxies: Canadian residency status and mother tongue. These are indicators that reflect international characteristics described by Reuber and Fischer (1997: 807). Management and financial experience was determined by asking respondents: "How many years of experience does the majority owner have in owning or managing a business?" and "Excluding publicly-traded shares, mutual funds or stocks, did the majority owners of the business have any private investment in any other businesses?"

Empirical Findings

Table 3 indicates that majority women-owned firms are underrepresented among SME exporters. Approximately 17 percent of Canadian small- and medium-enterprises are majority women-owned (with ownership between 51 and 100 percent). Among Canadian SME exporters, only 12 percent of firms are majority women-owned. Table 3 indicates that SMEs investigated here are indeed small, with an average of four employees and average annual revenues of less than \$600,000. Less than 40 percent of owners expressed an intention to grow their firms in the next two years. Firms operate across sectors, with the vast majority being in the various services sectors; approximately five percent of firms are in the manufacturing sector with a similar proportion of firms in knowledge-based industries. Approximately one-third (28.7 percent) of Canadian SMEs report some expenditure for R&D and less than five percent (4.2 percent) of SMEs are deemed to be 'innovators' (defined as R&D expenditures in excess of 25 percent of total investment).

Univariate Student t-tests and Wilcoxon rank sum tests were conducted to identify statistically significant differences between intensive exporters and domestic firms with results summarized in Table 4. As anticipated, larger firms (number of employees, annual revenues, total assets) were associated with exporting (p-value < 0.000). Owners of exporter firms were significantly more likely to profess an intention to seek growth than owners of non-export firms (p-value < 0.000). As Table 4, Panel 1B indicates, sector and investment in R&D were significantly associated with export status (p-values of < 0.000), particular manufacturing, wholesale and retail, professional services, and knowledge-based firms. With respect to years of management experience, owners classified as reporting more than five and more than ten years of experience were more likely to export (p-values < 0.010 and 0.001, respectively) than owners with less experience. No significant differences between domestic and exporter owners were noted with respect to visible minority and residency (immigrant) status. Language was marginally significant (p-value < 0.077): owners whose first language was English and "other" (than French and English, Canada's two official languages) were more likely to export (p-values < 0.012 and < 0.085, respectively).

Table 5 reports on owner and firm attributes by gender of ownership (e.g., majority male-owned businesses, 50/50 partnerships and majority female-owned businesses). Among the larger population of SMEs: majority female-owned firms were less likely to seek growth, reported less management and financial experience and operated smaller, less profitable firms and firms concentrated in service sectors. With the exception of growth intention (p-value <

0.901), gender differences were systemic across domestic firms and exporters. Male and female owners did not differ to a statistically significant extent with respect to language, immigrant status, and expenditures on R&D.

Table 3: Owner Attributes of Exporter and Domestic Firms

	New Firms*			Established Firms			All Firms			Total
	Exporters (INVs)**	Domestic (DNVs)	p-value	Exporters (EEs)	Domestic	p-value	Exporters	Domestic	p-value	
Number of cases	194	2632		371	4247		565	6879		7444
Owned by a visible minority	12.0%	9.2%	0.308	6.4%	6.4%	0.997	7.6%	7.0%	0.741	7.0%
Owned by an immigrant	9.8%	3.8%	0.002	0.6%	0.5%	0.995	2.7%	1.2%	0.350	1.3%
First language of primary owner			0.395			0.127			0.077	
English	64.7%	66.1%		74.5%	66.9%		72.2%	66.7%		66.9%
French	15.1%	17.7%		18.9%	20.7%		18.0%	20.1%		20.0%
Other	20.2%	16.2%		6.7%	12.3%		9.7%	13.2%		13.1%
Experience of primary owner			0.115			0.970			0.137	
Less than 5 years	26.2%	39.4%		7.0%	5.5%		11.4%	13.0%		12.9%
5 to 10 years	25.6%	18.7%		10.2%	19.1%		13.7%	19.0%		18.8%
More than 10 years	48.2%	41.9%		82.8%	75.4%		74.9%	68.0%		68.3%
Age of primary owner			0.297			0.817			0.181	
< 30	0.7%	9.1%		1.6%	1.4%		1.4%	3.1%		3.0%
30–39	22.8%	25.1%		11.8%	13.2%		14.3%	15.8%		15.8%
40–49	34.7%	36.7%		38.7%	34.5%		37.8%	35.0%		35.1%
50–64	31.9%	25.8%		39.8%	39.7%		38.0%	36.6%		36.7%
>64	9.9%	3.4%		8.1%	11.2%		8.5%	9.5%		9.4%
Gender of ownership team			0.059			0.019			0.002	
No Female Ownership	43.0%	51.8%		56.1%	52.4%		53.1%	52.3%		52.3%
1 to 49% Female Ownership	16.6%	9.9%		13.1%	10.4%		13.9%	10.3%		10.4%
Female Ownership Exactly 50%	12.6%	16.7%		23.2%	21.0%		20.8%	20.0%		20.1%
51 to 100% Female Ownership	2.8%	3.0%		1.1%	1.0%		1.5%	1.5%		1.5%
100% Female Ownership	25.0%	18.6%		6.4%	15.1%		10.7%	15.9%		15.7%
Informal investor	5.9%	9.3%	0.085	10.8%	9.8%		9.7%	9.7%	n/a	9.7%
Growth intention	72.7%	54.9%	0.000	65.2%	32.8%	0.000	66.9%	37.7%	0.000	38.8%

*New firms are defined as businesses that have operated for less than 3 years; Established firms (EEs) have operated for more than three years.

** International new ventures (INVs) are defined as business that have operated for less than 3 years and report that export revenue accounts for more than 25 percent of sales.

Table 4: Owner and Firm Attributes of Canadian SME Exporters and Domestic Firms*

Panel 4A:					Panel 4B:				
	Exporter	Domestic	p-values	Total		Exporter	Domestic	p-values	Total
Owner Attributes	n=565	n=6879		n=7444	Firm Attributes	n=565	n=6879		n=7444
Visible minority	7.6%	7.0%	0.741	7.0%	Firm Size				
Immigrant status	2.7%	1.2%	0.350	1.3%	Average FTE employees	8.6	3.7	0.000	3.9
First language of owner			0.077		No employees	55.9%	49.4%	0.003	49.7%
English	72.2%	66.7%	0.012	66.9%	0.5–4 employees	15.6%	34.6%	0.000	33.8%
French	18.0%	20.1%	0.335	20.0%	5–19 employees	18.3%	13.1%	0.014	13.3%
Other	9.7%	13.2%	0.085	13.1%	20–99 employees	9.2%	2.6%	0.001	2.9%
Experience of owner			0.137		Sector			0.000	
<5 years	11.4%	13.0%	0.434	12.9%	Agriculture/Primary	9.5%	9.9%	0.837	9.9%
5 to 10 years	13.7%	19.0%	0.010	18.8%	Manufacturing	16.3%	3.5%	0.000	4.1%
>10 years	74.9%	68.0%	0.001	68.3%	Wholesale/Retail	21.4%	14.2%	0.001	14.5%
Age of primary owner			0.181		Professional services	15.4%	11.2%	0.043	11.4%
< 30	1.4%	3.1%	0.241	3.0%	Technology	15.1%	5.5%	0.000	5.9%
30–39	14.3%	15.8%	0.476	15.8%	Tourism	5.8%	8.5%	0.144	8.4%
40–49	37.8%	35.0%	0.200	35.1%	Other sectors	16.4%	47.2%	0.000	45.9%
50–64	38.0%	36.6%	0.534	36.7%	R&D Expenditures			0.000	
>64	8.5%	9.5%	0.611	9.4%	None	39.1%	72.7%	0.000	71.3%
Gender of ownership			0.002		<10%	31.8%	18.3%	0.000	18.8%
No Female owners	53.1%	52.3%	0.693	52.3%	10–20%	11.3%	4.8%	0.001	5.1%
1–49% Female owners	13.9%	10.3%	0.086	10.4%	> 20%	17.8%	4.2%	0.000	4.8%
Exactly 50%	20.8%	20.0%	0.727	20.1%	Financial Profile				
Majority female-owned	12.2%	17.4%	0.0103	17.2%	Total Revenues	\$1,219,239	\$558,247		\$591,978
Informal Investor	9.7%	9.7%	0.998	9.7%	Net profit before tax	\$45,610	\$44,442		\$44,500
Growth intention	66.9%	37.7%	0.000	38.8%	Total assets	\$749,873	\$510,799		\$522,999
					Debt to assets (median)	0.81	0.43		0.45
					Return on assets (median)	0.04	0.15		0.15

*Where exporters are defined as SMEs that report ≥ 25 percent of revenue attributed to foreign sales.

Domestic firms are defined as firms that do not export at all.

Table 5: Attributes of Canadian SME Exporters and Domestic Firms by Gender of Ownership

Ownership Category	Domestic Firms				Exporters			
	Majority Males	50/50 Ownership	Majority Females	p-values (Majority M/F)	Majority Males	50/50 Ownership	Majority Females	p-values (Majority M/F)
Language of Primary Owner				0.789				0.461
English language owner	64.6%	78.5%	61.8%		72.4%	85.2%	50.4%	
French language owner	22.3%	10.3%	21.4%		17.0%	9.9%	38.5%	
Other language owner	13.1%	11.1%	16.8%		10.5%	4.9%	11.1%	
Experience of Primary Owner*				0.000				0.000
< 5 years	12.8%	7.6%	17.8%		9.1%	10.4%	21.8%	
5 to 10 years	16.7%	14.5%	29.8%		13.1%	2.0%	33.1%	
> 10 years	70.5%	77.9%	52.4%		77.8%	87.7%	45.1%	
Age of Primary Owner*				0.000				0.007
< 30 years	3.0%	1.6%	4.6%		2.0%	0.0%	0.1%	
30–39 years	14.3%	12.7%	24.0%		16.1%	4.6%	29.2%	
40–49 years	35.9%	33.2%	32.3%		38.0%	29.8%	44.9%	
50–64 years	36.6%	41.3%	31.9%		36.3%	49.6%	24.2%	
>64 years	10.2%	11.2%	7.2%		7.6%	16.0%	1.6%	
Immigrant status	0.8%	1.9%	1.8%	0.454	1.6%	1.3%	10.1%	0.209
Visible minority	5.8%	6.6%	11.3%	0.017	7.4%	3.0%	14.1%	0.025
Informal Investor	9.7%	10.8%	8.0%	0.000	13.3%	4.0%	0.8%	0.040
Growth Intention	39.1%	33.0%	35.7%	0.001	65.8%	51.9%	80.9%	0.901
Full-time employees (FTEs)	4.0	3.7	2.5	0.006	11.9	2.6	2.7	0.000
No employees	48.8%	48.7%	55.1%		46.5%	62.7%	79.0%	
0.5–4 employees	33.9%	36.8%	34.3%		13.9%	28.5%	9.4%	
5–19 employees	14.0%	12.6%	8.9%		24.7%	5.6%	9.8%	
20–99 employees	3.0%	1.6%	1.6%		13.6%	3.1%	1.4%	
Sector*				0.002			2.7%	0.004
Agriculture/Primary	12.4%	24.1%	4.4%		13.4%	27.7%	0.9%	
Manufacturing	3.5%	3.3%	3.3%		17.8%	7.6%	14.2%	
Wholesale/Retail	12.6%	16.1%	13.9%		25.9%	10.8%	4.7%	
Professional services	10.6%	7.1%	16.2%		10.8%	20.4%	25.6%	
Technology	5.7%	4.6%	4.4%		12.6%	23.7%	9.7%	
Tourism	6.7%	9.9%	11.5%		5.0%	0.3%	15.2%	
Other sectors	48.6%	34.9%	46.3%		14.4%	9.6%	29.7%	
R&D Intensity *				0.338				0.434
0 to <10%	91.5%	91.5%	89.2%		76.2%	70.5%	55.6%	
10 to 20%	4.1%	5.5%	6.4%		11.5%	11.1%	9.5%	
>20%	4.4%	3.0%	4.4%		12.3%	19.4%	35.9%	

While the univariate comparisons reported above are supportive of several of the study hypotheses advanced here, they are not necessarily conclusive. This is because several firm and owner attributes are correlated among themselves. By way of one example, it was noted that female-owned firms appeared less likely to export than firms owned by men; however, female-owned firms are also concentrated in sectors (such as personal services) where exporting is less likely; likewise, female-owned firms also tend to be smaller than those owned by men and smaller firms are also less likely to export. Consequently, it is not yet clear whether the gender differences in export propensity are attributable to differences in firm size and sector or whether gender differences are additional to these systemic factors. Likewise, it is arguable that size and sector are themselves interdependent. To disentangle these potentially confounding effects, moderated multiple regression described previously was employed and is described in more detail presently.

Multivariate Modeling of Export Propensity

To investigate factors associated with export propensity, moderated multiple regression was employed using logistic regression because the outcome variable (exporter or not) is binary. Logistic regression is a particularly useful means of representing decision outcomes: it is a technique that makes relatively few statistical assumptions (Hosmer and Lemeshow 1989; Press and Wilson, 1978); it is relatively robust to the statistical assumptions that are made (Stevens, 1986); and it closely corresponds to the decision processes made by humans. The specific model is:

$$\log \text{it } \theta(x) = \log \left[\frac{\theta(x)}{1 - \theta(x)} \right] = \alpha + b_1 X_1 + b_2 Z_2 + b_3 XZ_3 + \dots$$

Where

$$\theta = \frac{e^{(\alpha + b_1 X + b_2 Z + b_3 XZ)}}{1 + e^{(\alpha + b_1 X + b_2 Z + b_3 XZ)}}$$

According to the logistic regression framework when the exponent of e in the above equation is large, θ approaches a value of 1 (corresponds to the firm being an exporter). When the exponent of e is small, θ approaches a value of 0, corresponding to non-exporters. The estimates of b_i allow inference about the relative impact of each of the independent variables.

Here, the dependent variable was a binary (0, 1) variable corresponding to whether (=1) or not (=0) the firm was an intensive exporter (cases where export intensity was between 1 and 25 percent were excluded from analysis; however, sensitivity analysis was carried out by redefining the dependent variable to include all exporters and repeating all logistic regression estimations reported here with no substantive difference in the results). Following from the study hypotheses and previous findings from the research literature, owner profile data entered into the models as the vector X included owner age, informal investment (0, 1), growth intention (0, 1), first language of majority owner (English, French and other), Canadian residency status (person resided in Canada for less than 5 years), and management experience (< 5 years; 5–10 years; > 10 years). Firm profile data included size (FTE equivalents), a proxy for innovation (R&D expenditures >25% or not), and capital profile.

Estimation of the Base Model

Table 6 shows the results of successive estimations of the moderated logistic regression base model. The base model excludes gender measures and focuses on developing a reliable model of export propensity. As such, it omits the Z and $X \cdot Z$ terms in the generic moderated multiple regression model depicted by (1). Panel A shows the results of the initial regression estimate using only the vector of the predictor variables. The results show that statistically significant predictors of exporting are (with all other variables held constant): first language of the primary owner (exporting is more likely if the primary language is different from English and French); primary owner is an immigrant; growth intention of the owner; size and sector of the firm; geographic setting of the firm (rural versus urban); and, level of investment in R&D. From Table 6 Panel A, it appears that age and experience of the owner are not significant determinants of export propensity, although these variables may be collinear with each other or with other predictor variables (a possibility that we subsequently check). Other non-significant determinants of exporting include whether or not the owner is: a member of a visible minority group, is an informal investor and whether the firm is a new firm. In order to further determine whether these variables may seem non-significant because of collinearity the model is successively re-estimated deleting variables incrementally and checking to determine the change in incremental explanatory power at each step. The result was the more parsimonious model in Panel B.

The logistic regression model summarized in Table 6, Panel B was statistically significant at a p -value of less than 0.000. The Cox and Snell and Nagelkerke R -squared values were 0.100 and 0.232, respectively and the Hosmer/Lemeshow test was not statistically significant indicating no significant differences between observed and predicted classifications. The in-sample correct classification rate was 92.3 percent. According to this model exporter firms are more likely to be owned by immigrants (p -value = 0.004) and people whose first language is not one of Canada's two official languages (English and French; p -value <0.000). Larger firms (p -value <0.000) are more likely to be exporters and firms located in urban settings (p -value <0.000). Firms that do not invest in R&D are relatively less likely to be exporters (p -value <0.000). The analysis shows that exporting is most likely in the professional service providers, manufacturing and technology sectors. These findings are all in keeping with expectations, the results in Panel A and with previous results from the literature.

Estimation of Gender Effects

The next step in the analysis was to investigate the ways in which gender impacts export propensity. This involves adding to the predictive model of propensity the direct effect (Z) and moderator ($X \cdot Z$) terms depicted in the generic moderated multiple regression model (1). Therefore, the logistic model was again re-estimated in two steps. In the first step only the interaction terms ($X \cdot Z$) were introduced to the model. These terms represent potential interactions between predictor variables (size, sector, etc., as above) and gender, where gender was coded as a binary variable corresponding to the firm being majority-female owned (=1) or not (=0). (Note that cases that were 50/50 male-female owned were not retained for this part of the analysis. This yields a clearer gender effect and reduces statistical degrees to freedom). Table 6, Panel A shows the estimation of the model with all possible interaction terms.

As before, the model was then re-estimated with sequential deletion of non-significant interaction terms to arrive at a more parsimonious model. Once this was obtained, the direct

Table 6: Logistic Regression Models of Export Propensity: Base Model

Owner and firm attributes	Panel A: Full Model				Panel B: Reduced Model*			
	Coefficient Estimate	Standard Error	p-value	Exp (B)	Coefficient Estimate	Standard Errors	p-value	Exp (B)
Age of primary owner	0.008	0.006	0.163	1.008				
Management experience	-0.003	0.012	0.819	0.997				
First language of owner			0.000				0.000	
English	-0.312	0.163	0.055	0.732	-0.235	0.153	0.125	0.791
French	-0.917	0.198	0.000	0.400	-0.834	0.187	0.000	0.434
Visible minority	-0.286	0.198	0.148	0.751				
Immigrant status	0.810	0.249	0.001	2.249	0.708	0.243	0.004	2.031
Owner is an informal investor	0.012	0.147	0.937	1.012				
Growth intention (Yes = 1)	0.499	0.115	0.000	1.647	0.456	0.113	0.000	1.578
Employees (FTEs)	0.012	0.002	0.000	1.012	0.012	0.002	0.000	
Sector			0.000				0.000	
Primary	0.582	0.281	0.038	1.790	0.604	0.280	0.031	1.829
Manufacturing	2.125	0.198	0.000	8.370	2.139	0.197	0.000	8.494
Wholesale & Retail	1.251	0.205	0.000	3.494	1.241	0.205	0.000	3.460
Professional Services	1.118	0.219	0.000	3.059	1.147	0.218	0.000	3.147
Technology	1.914	0.201	0.000	6.781	1.917	0.200	0.000	6.798
Tourism	0.119	0.263	0.652	1.126	0.117	0.262	0.656	1.124
Location (Rural = 1)	-0.548	0.153	0.000	0.578	-0.535	0.152	0.000	0.586
Started trading, 2002 or later(=1)	-0.129	0.143	0.368	0.879				
=1 if No investment in R&D	-0.809	0.115	0.000	0.445	-0.814	0.114	0.000	0.443
=1 if R&D > 20% of investment	0.651	0.165	0.000	1.918	0.628	0.164	0.000	1.874
Constant	-3.443	0.374	0.000		-3.164	0.235	0.000	

*Non-significant estimates suppressed

Exporters are defined as SMEs that report ≥ 25 percent of revenue attributed to foreign sales.

Domestic firms are defined as firms that do not export at all.

Table 7: Logistic Regression Models of Export Propensity: Gender Effects

	Panel A: Full Model, Gender Interactions				Panel B: Reduced Model, Gender Interactions*			
	Coefficient	Std Error	p-value	Exp (B)	Coefficient	Std Error	p-value	Exp (B)
First language of owner			0.000				0.000	
English	-0.408	0.281	0.146	0.685	-0.605	0.141	0.000	0.546
French	-1.454	0.355	0.000	0.234	0.253	0.154	0.101	1.287
Immigrant status	-0.049	0.491	0.921	0.952	-0.020	0.487	0.967	0.980
Growth intention (Yes =1)	0.332	0.226	0.141	1.394	0.453	0.114	0.000	1.573
Employees (FTEs)	0.014	0.004	0.000	1.014	0.012	0.002	0.000	
Sector			0.000				0.000	
Primary	1.013	0.707	0.152	2.754	1.809	0.323	0.000	6.106
Manufacturing	2.754	0.360	0.000	15.704	1.114	0.352	0.002	3.045
Wholesale & Retail	1.976	0.381	0.000	7.212	0.780	0.373	0.037	2.181
Professional Services	1.677	0.399	0.000	5.349	1.531	0.336	0.000	4.623
Technology	2.444	0.364	0.000	11.516	-1.098	0.490	0.025	0.334
Tourism	-0.242	0.506	0.633	0.785	-0.637	0.409	0.119	0.529
Location (Rural=1)	-0.415	0.322	0.198	0.661	-0.531	0.152	0.000	0.588
No investment in R&D (1 if true)	-0.795	0.229	0.001	0.045	-0.805	0.115	0.000	0.447
High investment in R&D (1 if true)	0.404	0.337	0.230	1.498	0.635	0.165	0.000	1.887
**Interactions: Gender with ...					Non-significant variables removed			
**Sector			0.064				0.117	
Primary	-0.327	0.583	0.574	0.721	-0.215	0.163	0.187	0.806
Manufacturing	-0.468	0.228	0.040	0.626	-0.374	0.197	0.058	0.688
Wholesale & Retail	-0.560	0.248	0.024	0.571	-0.187	0.197	0.342	0.830
Professional Services	-0.402	0.246	0.102	0.669	-0.177	0.181	0.329	0.838
Technology	-0.393	0.233	0.091	0.675	0.357	0.211	0.090	1.429
Tourism	0.168	0.255	0.511	1.183	0.023	0.228	0.918	1.024
**First language of owner			0.098					
English	0.118	0.180	0.512	1.125				
French	0.466	0.227	0.040	1.594				
**Immigrant status	0.571	0.302	0.058	1.770	0.545	0.298	0.068	1.724
**Growth intention (Yes =1)	0.096	0.152	0.526	1.101				
**Employees (FTEs)	-0.002	0.003	0.611	0.998				
**Rural location	-0.096	0.224	0.669	0.909				
**1 if no investment in R&D	-0.009	0.156	0.955	0.991				
**1 if R&D > 20%	0.182	0.226	0.419	1.200				
Constant	-3.166	0.237	0.000		-1.261	0.163	0.000	

gender effect (Z in generic model (1) was introduced to the model to determine if, after accounting for predictor variables and moderator effects, whether gender adds further explanatory power). Table 7, Panel B presents the final model.

The addition of gender *interaction* terms (Table 7, Panel A) added to the explanatory power of the whole model at a p-value = 0.14 with Cox and Snell and Nagelkerke R-squared values of 0.103 and 0.239, respectively. These are marginal improvements. However, when non-significant interaction terms are removed to yield a more parsimonious model (Table 7, Panel B) the additional explanatory power of the interaction terms is significant at a p-value of 0.068 and the only interaction terms retained are between gender and sector (p-value = 0.117) and gender and immigrant status (p-value = 0.068). The subsequent addition of gender alone as a direct explanatory variable (presumes an additional direct effect on exporter status after allowing for interaction effects) added no further significant explanatory power to the model (p-value = 0.768).

DISCUSSION OF FINDINGS

The study employed logistic regression to develop a "base model" of export propensity: increased likelihood of foreign trade was associated with firm size (full-time equivalent employees), first language of owner, immigrant status, growth intentions, sector, investment in R&D and geographic proximity. All other determinants held constant, larger firms, owners whose first language was not French, new Canadians, owners who aspire to grow the firm, manufacturers, wholesale/retailers, professional services and technology-based firms, firms with R&D expenditures greater than 20 percent of investments and urban firms are also significantly more likely to export. Consistent with previous empirical studies, the gender composition of the ownership was significantly associated with export propensity.

The study then reported that majority women-owned firms are underrepresented among SME exporters. Approximately 17 percent of Canadian small- and medium-enterprises are majority women-owned (with ownership between 51 and 100 percent). Among Canadian SME exporters, only 12 percent of firms are majority women-owned. Further analysis of data was undertaken to examine the interaction effects of gender with base model determinants of exporting. Gender differences in export propensity are, in most part, associated with systemic differences in firm performance. This finding is consistent with the dictates of liberal feminist theory. Hence, hypotheses H1 and H1a (gender differences in export propensity can be accounted for by differences in firm size; majority female-owned firms are smaller than firms owned by male counterparts) were supported. Hypothesis H2a (female business owners bring to the firm less management experience compared to male business owners.) was also partially supported. Whereas gender differences in the management experience were cited, years of management experience (all other determinants held equal), did not improve the explanatory power of the base export model. This finding may help to explain inconsistencies among previous studies with respect to gender, management experience and export propensity. While scholars have previously reported that gender differences in experience may (Reuber 1992; Orser *et al.*, 2004) or may not (Fischer *et al.*, 1993) account for differences in export propensity, this study indicates that other firm and owner attributes supersede or mitigate the influence of management experience on the likelihood of exporting.

Having accounted for gender differences in firm performance (as rationalized within a liberal feminist perspective), differences in the likelihood of exporting remained. Hence, hypothesis 3 (after controlling for gender differences in firm performance, gender differences in export propensity remain) was supported. To explore further the association between gender and export propensity, social feminist theory provided a complementary rationale to explain gender influences on exporting. Among the determinants discussed and empirically tested in an expanded logistic regression mode, (e.g., owner's growth intention, sector engagement, immigrant status and investment in R&D), no gender interaction effects were observed between gender and owners' growth intention and gender and R&D investment. Surprisingly, majority women-owned Canadian firms were no less likely to invest in R&D. Hence, hypothesis 3a (female business owners are, on average, less likely to express the intention to grow the size and scope of their business) was not supported. Gender did, however, act as a moderating variable with respect to industry sector and immigrant status. Hypothesis 3b (immigrants or new Canadians are relatively more likely to export) was supported. Hypothesis 3c (female business

owners operate within sectors that are less likely to be associated with exporting compared to male counterparts) was partially supported.

Several potential explanations for the significant interaction between gender and sector are include the possibility that study respondents may represent a new cadre of globally-orientated and highly-credentialed women business owners, individuals who defy gender stereotypes by capitalizing on professional credentials and growth aspirations in the global marketplace. Alternatively, gender-focused organizations such as the Canadian Advanced Technology Women in Tech Forum and WISEST (Women in Scholarship, Engineering, Science and Technology) may be effective in boosting social networks, access to capital and owners' confidence, assets required in the international marketplace. Alternatively, women business owners in the more traditional or established manufacturing sector may hold or confront antiquated perceptions about the market opportunities for women business owners. One potential rationale for the unexpected observation that expenditures on R&D did not differ between majority women- and majority male-owned firms is an overall low propensity of Canadian SMEs to invest in R&D. For example, the OECD reports that the rate of Canadian SME R&D investment falls short of many developed nations including Sweden, Finland, Japan, Korea, United States, Switzerland, Germany, France and Denmark.

Managerial implications

Gender differences in export propensity were accounted for, in large part, by differences in firm profile. These results suggest that growth-orientated, women business owners should consider the benefits of exporting as a means to enterprise growth, regardless of firm age or sector. This study supports to the need for women business owners to build social professional networks and mentoring relationship across sectors, and in particular, with export-oriented women and export-focused women's organizations.

At the same time, this large scale quantitative study is consistent with findings that report perceived gender bias in the export marketplace (Orser *et al.*, 2004; Riddle and Foundation for Canadian Women Entrepreneurs, 2000).

Implications for future research

Building from a liberal feminist paradigm, an extension of this study is to examine owner and firm attributes, including gender, that are associated with other modes of export (e.g., indirect exporting, joint-ventures, contracting, franchising) and other international transactions (e.g., importing, on-line/e-based transactions). Compared to European SMEs, the low percentage of Canadian SMEs (8 percent) that engage in export is concerning. Given the size of Canada and close geographic proximity to the United States, (Canada's dominant trade partner), the literature is not clear why owners of Canadian SMEs seem reluctant to engage in north/south versus local, regional, or east/west trade. Hence, further research is required to understand cross-border trade impediments, as well as the social-psychological influences associated with the export decision-making (e.g., anticipated outcomes, subjective norms, perceptions about access to requisite resources).

Other research methods may also be more useful than self-reported survey questions in order to determine owners' international knowledge and foreign market experience (qualitative analysis of

interview data are one example of an alternative approach). While this study identifies residency (immigrant) status as a potential owner attribute associated with export propensity, it also suggests the need to better understand the relative importance of various types of foreign market knowledge and experience (e.g., time spent abroad, time spent in domestic markets, language, international management experience). Given that this is the first large-scale study that has explicitly examined the experience of male and female exporters, verification of findings across other nations is warranted.

Finally, these findings call for further theoretical discussion about the internationalization process of SMEs from a feminist perspective. As these results indicate, it is time to further develop theoretical models that consider organizational structures, values exchanges and cognition, processes that capture the influences of power relationships and social structure. Given the infancy of this research focus, feminist methodologies suggest that need for qualitative research of export-orientated female business owners.

Implications for export programs and policy

These results may serve to remind policy makers about the need to consider how gender is embedded in export stimulation programs. Much of export policy is "gender blind." For example, sector-specific export programs targeting manufacturing and technology firms are inherently gendered. Such initiatives tend to honour male-dominated sectors while undervaluing incidence rates and economic contributions of majority women-owned firms operating in professional and other service sectors. Program participation criterion that specifies size thresholds is also gendered, given that majority women-owned firms are comparatively smaller. To avoid gender bias in export program participation criteria, program eligibility based on the incidence rates of ownership by gender may provide more objective selection criteria.

With respect to other remedial economic strategies, these study findings suggest that it is likely best that programs focus on development of the firm (e.g., helping to make women-owned firms "export ready"). Given the relevance of growth intention in the export process, business development and export stimulation programs might also: (a) communicate the benefits of SME growth (e.g., new customers and markets, higher sales, greater market exposure, opportunity for new products and employees, increased brand awareness); and (b) assist women business owners in understanding the potential implications of reluctance to grow through export (e.g., anticipated costs and benefits, requisite resources). The importance and potential opportunity to leverage women's knowledge of foreign markets or relationships with ethnic communities in international markets might also be part of a communications and education strategy. Programs and policies should also be sensitive to systemic gender differences in owner attributes and firm performance. For example, trade commissions and training officers should be made aware of previously documented perceptions about gender related trade barriers and the current study findings about the incidence and economic contribution of women exporters.

To date, much of the attention of both policy makers and researchers has focussed on manufacturing and technology-based firms. This is understandable because export propensities are highest for firms in these sectors. However, these data indicate that services firms represent the vast majority of Canadian businesses. Even though relatively fewer services firms export, the sheer size of the services sectors means that there in, in fact, a higher number – in absolute terms – of services

exporters than of manufacturing exporters. It is also worth recalling that this study found no difference in export intensity across sectors.

STUDY LIMITATIONS

Several study limitations are noted. First, this study drew on two feminist theoretical perspectives: liberal and social feminism. An empirical study, such as described above, is better suited to the liberal feminist discourse. This is because, social feminist theory calls for scholars to look beyond the individual and to social, class, race and power structures. While this study begins to examine social influences, through proxies of owners' growth intentions, ethnicity, immigrant status and sector engagement, the empirical methodology employed does not adequately capture the important interrelationships amongst these and other social structures. Given the infancy of feminist entrepreneurship research, qualitative techniques to understand women's experiences in export are encouraged. Further theoretical development about social feminist theory and female business owners' engagement in the globalization of trade is also required.

Second, the sampling frame only accounted for exporting as opposed to other forms of internationalization (e.g., importing, joint-ventures), a limitation also identified in other studies (Coviello and Jones, 2004). The primary question posed was: "Did the business sell or export any of its goods and services outside Canada during the past 12 months?" However, the Canadian Department of Foreign Affairs and International Trade (DFAIT) identifies four modalities of international trade: goods or services that cross the Canadian border, including transportation and travel; customers who cross the border into Canada such as tourists; firms that establish a commercial presence abroad; and revenue generated when Canadian citizens cross the border to do business abroad. As such, the current work likely underestimates the incidence rate of SME export.

Third, the sub-group of firms (established exporters) was an aggregation of all firms that had been exporting for three years or more. This classification does not distinguish between gradual growth exporters and those that may have been international ventures from inception. This aggregation of data means that both potentially high growth- and low-growth exporters were considered as one group. Third, a more refined measure of management experience is required in order to capture accurately the complexity of achieving performance in a network economy. Since one of the most important resources for these firms are their relationships with other actors in the network (Håkansson and Snehota, 1989), further studies should help determine how to capture the important variables in effective international relationships. The unit of measure in the research was the firm owner. It is recognized that owner self-report data may be biased towards favourable owner attributes. The study also used cross-sectional data with its obvious shortcomings. Ideally, longitudinal data would best capture the accumulation of owner and firm resources associated with firm growth and export.

Finally, the p-values associated with the gender interaction effects are not as high as other determinants of export propensity. Accordingly, readers are cautioned to be aware of the Type 1 error rates associated with concluding that gender interactions are significant determinants of export. As this work demonstrates, it is important when considering the influence of gender on export to account for other systemic factors associated with exporting.

CONCLUSION

This research set out to examine the impact of gender of ownership on export propensity of SMEs. Previous studies had shown that, on average, majority women-owned firms were less likely to export compared to majority male-owned enterprises. Why this was so, however, was not clear. To better understand these dynamics, this work drew on a large (representative) sample of Canadian SMEs to derive a base model of export propensity. The model was then further examined to determine the extent to which gender of ownership moderated the effects of other determinants on export propensity. The work was guided by feminist theories of internationalization and anecdotal comments about gender-related barriers to exporting. As such, this study provides the first, large-scale, empirical study about the association among gender, firm performance and SME exporting. The work also provides insights about the value of feminist analysis within export theory. Gender interactions were noted with respect to sector and immigrant status. No gender interaction effects were noted with respect to firm size, owners' growth intentions, first language of owner, geographic proximity and investment in R&D. Further research to explore these gender interactions is now warranted.

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