

# **ENTREPRENEURIAL ORIENTATION AND INNOVATION INVESTMENT: A COMPARATIVE ANALYSIS OF FACTORS LEADING TO EXPORTING AMONG ATLANTIC CANADIAN WOMEN BUSINESS OWNERS**

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## **ABSTRACT**

*This research assesses the influence of entrepreneurial orientation, marketing strategy development, engagement in research and development, and technology investment, as predictors of export activity for women business owners in Atlantic Canada. Utilizing survey research and binary logistic regression, researchers determined that entrepreneurs' reasons for starting their business were either due to income necessity or to pursue a unique market opportunity had no bearing on their interest to pursue export activities: a result that calls into question previous research in the field. The only factor that had a statistically significant influence on exporting was investment in research and development. Future research is recommended to further examine these relationships.*

## **INTRODUCTION**

The data analyzed in this paper were collected as part of a larger government-sponsored study, dedicated to understanding the unique experiences and needs of women business owners in Atlantic Canada. The goals of the larger study focused on how and why women started businesses and if they were exporting or had export intentions. The research also focused on supplier diversity, the use of various kinds of export supports, and the goals which motivate women to start businesses and develop them.

The focus of this particular paper is to investigate the extent to which goals in starting their businesses influenced the potential export activity of women business owners in Atlantic Canada. Previous research indicated that start-up motivation was a critical factor in business success. In addition to considering start-up goals and exporting, this research also focused on ways in which business owners can become more fully engaged propelling the business towards growth by examining research and development activity and investment in technology.

This research was collected on behalf of the Atlantic Canada Women in Export (ACWIE) working group. ACWIE is a collaborative effort made up by the Centre for Women in Business (Halifax, NS), the PEI Business Women's Association, Women in Business New Brunswick, and the Newfoundland and Labrador Organization of Women Entrepreneurs. The mandate of ACWIE is to identify and develop pan-Atlantic opportunities that support, enhance, and increase export activity among women-business owners (WBOs). This research was funded by the Atlantic Canada Opportunities Agency and approved by the University Research Ethics Board.

### **LITERATURE REVIEW**

Women-owned businesses are a vital part of the Canadian economy. Government statistics reported that one-third of all self-employed individuals in Canada in 2011 were women (Industry Canada, 2012). In 2011, there were 950,000 self-employed women in Canada (Industry Canada, 2012). Developing entrepreneurial activity among women has had a vital impact on wealth and job creation across the country.

Exporters are an economic driver of the Canadian economy and exporting can be an important strategic means of developing markets beyond Canada's relatively small domestic market. Exporting has accounted for close to 40 percent of Canada's gross domestic product in recent years and in 2010 the total value of exports was approximately \$313 billion (Industry Canada, 2012). The Canadian Trade Commissioner Service (2011) cites the benefits of exporting as increased sales, higher profits, economies of scale, reduced vulnerability, new knowledge and experience, global competitiveness, and domestic competitiveness.

In terms of exporting, Orser and Carrington (2006) found that women-owned firms were significantly less likely to export compared to their male counterparts. However, they found that the majority of research was focused on particular sectors such as manufacturing, high-tech based, and high-knowledge-based firms. Female business owners tend to populate the service industry and this sector is often excluded from research studies of exporting in small/medium sized businesses (Lefebvre & Lefebvre, 2000). Orser, Spence, Riding, and Carrington (2009) conducted a study in 2009 that controlled for sector, firm, and owner attributes. Their findings supported the conclusion that female majority-owned firms were significantly less likely to export than firms owned by men. In a briefing dated December 2012 by the Conference Board of Canada it was noted that Canada's trade strengths are shifting away from some manufactured products toward professional services and products related to Canada's natural resource wealth and that this could be an encouraging change in trade patterns for women business owners (Burt & Ai, 2012).

When examining the export tendency of women-owned businesses, it is useful to look at the entrepreneurial orientation of women business founders. A study by Kariv (2011) analyzed the push/pull perspective. The push orientation is one of necessity where an individual is "pushed into entrepreneurship because all other options for work are absent or unsatisfactory." The pull orientation involves "opportunity-driven entrepreneurs who are pulled into this endeavor more out of choice to exploit some business opportunity (p. 398)." Women's entrance into entrepreneurship might help explain their propensity to grow and ultimately export. Research has revealed that necessity-driven orientation to entrepreneurship is associated with lower levels of business success and higher business failure rates than the opportunity-driven orientation.

Hughes (2003) found that there was a discrepancy between the genders in their orientation towards entrepreneurship and that women were more prone to necessity entrepreneurship than men. While Kariv's (2011) study was used to compare gender and business success between Canada and other countries it is interesting to note that he used Canada because of his belief that the country exhibited more opportunity-driven entrepreneurs. However, he did not provide any statistical breakdown as to the percentage of necessity-driven versus opportunity-driven female-owned businesses.

Innovation is reported as a critical activity for exporting because it aids in competitiveness and survival in global markets. Exporters were more likely to invest in research and development (R&D) and in 2007 the percentage of small and medium sized enterprises (SME) exporters classified as innovative (spending more than 20 percent of total expenditures on R&D) was more than double that of SME non-exporters (11 percent versus 4 percent) (Industry Canada, 2011). Ito and Lechevalier (2010) found that firms that invested more intensively in R&D also had more intensive export behaviour.

Chandra (2006) concluded that investing in technology can stimulate export behaviour. Developing countries are using technology to adapt to changing environments and using it to help them become exporters (Chandra, 2006). He studied export growth in developing countries (Malaysia's export expansion in palm oil, salmon farming in Chile, Uganda's fishery exports, wine production in Chile) demonstrating support for the connection between technology and exporting. While not gender-specific, his research provides evidence that technology adaptation is a critical success factor in exporting.

Female business owners see technology as a way to increase workplace flexibility. For example, 44 percent of female business owners used technology to allow their employees to work at home or to incorporate other flexibility into their work schedules. More than 60 percent also used technology as a way to balance the responsibilities of their personal and professional lives (SME Toolkit, 2012). This might account for the findings by the Taskforce for Women's Business Growth (2011) where it was reported that women business owners struggled with how to identify, select, and adopt technology, especially as it related to employing technology at different stages of the company's evolution, and within various business areas or units.

## **HYPOTHESES**

Based on previous research, hypotheses were selected that focused on entrepreneurial orientation, research and development investment, investment in technology, and female business owners' export intentions. The hypotheses were:

H1-Women business owners who start their businesses to pursue a market opportunity will be more likely to engage in exporting than those who started their businesses solely to gain an income source (necessity).

H2-Women business owners who invest in technology will be more likely to engage in exporting than those who do not invest in technology.

H3-Women business owners who invest in research and development will be more likely to engage in exporting than those who do not invest in research and development.

## **METHODOLOGY**

An online survey of women-owned businesses in Atlantic Canada was administered in October and November of 2012. An email was sent to approximately 1,200 women business owners asking for their participation in the survey. Contacts were provided by the Centre for Women in Business (Halifax, NS), by the PEI Business Women's Association, and by the Newfoundland and Labrador Organization of Women Entrepreneurs. These contacts were invited to participate in the survey by the Centre for Women in Business. Women in Business New Brunswick also participated, but sent out their own email requests to their clients. A telephone follow-up was also conducted for contacts in Prince Edward Island, Nova Scotia, and Newfoundland-Labrador, by a marketing research firm. Once approvals were received from Women in Business New Brunswick to contact their clients, follow-up phone calls were also made to that response group.

The survey response was 206 completed surveys, of which 199 usable surveys were obtained for analysis. Prior to analysis the data was weighted to ensure accurate representation across the four Atlantic provinces and to remove any sample skew across provinces. The final sample size in this analysis for the subset of variables studied was 160 cases.

## **MEASUREMENT**

Four variables were used in this analysis. Export Orientation was measured as non-exporter or exporter. This variable was dummy coded. The exporter group, coded as 1, included those who either currently export, or who plan to do so. The non-exporter group, coded as 0, consisted of entrepreneurs who had no interest, or intention to engage, in exporting activities.

Entrepreneurial orientation measured why women started their business. This variable was dummy coded so that those who had started their businesses to pursue a market opportunity were coded as 1 and those who started their businesses simply to pursue an income out of necessity were coded as 0.

Research and development investment was also dummy coded. Those who reported engaging in R&D investment were coded as 1, while those who did not invest in R&D activities were coded as 0.

Technological investment was measured based on whether or not respondents were actively engaged in using or acquiring technology and/or whether they had used technology to improve productivity or efficiencies in their firm. This measure was also dummy coded. Those who reported such investment were coded as 1, while those who did not report such investments were coded as 0.

## **DATA ANALYSIS**

Descriptive statistics were run for all measures related to the hypotheses as well as for general descriptors for the women business owners and their companies. These descriptors included

length of time they had owned their businesses, entrepreneur's age and education level, and number of employees.

Following descriptive analyses, hypotheses were tested through the use of binary logistic regression. Export orientation was the dependent variable. Entrepreneurial orientation, research and development investment, and technology investment, were used as covariates in the analysis. In order to test the relative impact of R&D investment and technology investment against entrepreneurial orientation a two-stage regression was conducted using the forward-stepwise regression method. Entrepreneurial orientation was entered first in the model followed by introduction of the investment variables in the second stage.

Prior to running the regression analysis, the predictor variables were subjected to a correlation analysis to confirm that collinearity did not exist. The resulting correlation coefficient between R&D and technology investment was weak at non-significant ( $r=.057$ ). Therefore, collinearity did not exist.

## RESULTS AND DISCUSSION

Over 71% had owned their businesses for more than 10 years and nearly 90% were over the age of 35. Most had completed a post-secondary credential, consisting of either a university degree or a community college/technical school diploma (81.4%).

Most women had started their businesses to gain an income, which was a necessity motive (71.4%). Only 28.6% had established their businesses to pursue a market opportunity.

The women business owners had from zero employees to 320 employees, with an average of 6.9 employees (std deviation = 26.4). The total number of employees consisted of both full and part-time staff.

Nearly 58% of women business owners (WBOs) were not exporting and had no plans to do so. Nearly 68% did no research and development (R&D). However, nearly 79% reported being engaged in technology in some manner, either by having already invested in specialized technology, or planning to make such an investment, or by having used such technology to increase their productivity and efficiency.

Binary logistic regression was used to test the hypotheses. The response variable was export orientation. The predictor variables were entrepreneurial orientation, R&D investment, and investment in technology. The conceptual model for the regression analysis was:

$$\text{Export Orientation (ODDS)} = f(\text{Entrepreneurial Orientation, R\&D Investment, Technology Investment})$$

A test of the full regression model against an intercept-only model was statistically significant. Entrepreneurial orientation was statistically significant in the first equation ( $\chi^2=4.532$ ,  $df=1$ ,  $p=.033$ ), with an odds ratio of 2.08. This result indicated that women who started businesses to pursue a market opportunity, the preferred approach over starting a business out of financial necessity, were twice as likely to export. However, export orientation failed to explain enough of the variance in the second stage of the analysis when R&D and technology investment were

entered as predictors. The regression analysis was statistically significant ( $\chi^2=25.338$ ,  $df=2$ ,  $p=.000$ ), but only for R&D investment in the second stage analysis.

The odds ratio demonstrated that women business owners who invested in R&D were 5.525 times more likely to export than those who did not. The 95% confidence interval around the predictor ranged from 2.75 to 11.1. This means that the odds of engaging in exporting ranges from 2.75 times more likely to 11.1 times more likely for those who started their business to pursue a market opportunity compared to those who started their business out of economic necessity. The resulting regression equation was:

$$\text{Export Orientation (ODDS)} = f(\text{R\&D Investment})$$

where

$$\text{Export Orientation (ODDS)} = -1.082 + 1.709 (\text{R\&D Investment})$$

Given that the code for actively investing in R&D was 1, the resulting odds ratio for export orientation based on market opportunity was .627, with an increased probability of exporting of 63%. The constant in the equation is negative, demonstrating that the tendency of women business owners is not to export. This is consistent with the frequency for export orientation where over half of the female business owners responding were not inclined to do so.

The regression analysis correctly classified 80.4% of the non-exporters and 58.9% of the exporters, for a hit rate of 70.8%. The Hosmer and Lemeshow  $\chi^2$  was not statistically significant ( $\chi^2 = 1.571$ ,  $df=4$ ,  $p=.814$ ) indicating that the data fit with a linear model. McFadden's  $R^2$  indicated that the resulting regression equation explained 75% of the variance in women entrepreneurs' likelihood to pursue an exporting strategy. The resulting regression analysis is shown in Table 1.

**Table 1. Logistic Regression Predicting the Likelihood of Exporting Based on Entrepreneurial Orientation, R&D Investment and Technology Investment\***

Predictor	B	Wald $\chi^2$ (df=1)	Sig.
Step One:			
Entrepreneurial Orientation	0.733	4.470	.035
Constant	-.440	5.467	.019
Step Two:			
Entrepreneurial Orientation	.527	1.947	.163
R&D Investment	1.709	23.065	.000
Technology Investment	0.071	.028	.868
Constant	-1.082	7.114	.008

\*Sample size = 160

## CONCLUSIONS AND RECOMMENDATIONS

This project aimed at profiling women entrepreneurs in Atlantic Canada with a focus on women exporters. This paper assessed the influence of entrepreneurial orientation and engagement in research and development and investment in technology, as predictors of export activity for women business owners in Atlantic Canada. Not all of the hypotheses were confirmed in this research. This research raised questions regarding what is in the literature about the relationship between start-up motivations of business owners and investment in R&D and technology.

The first hypothesis (H1) asserted that women business owners who start their businesses to pursue a market opportunity would be more likely to engage in exporting than those who started their businesses solely to gain an income source (necessity). This hypothesis was not confirmed in the analysis. The regression resulted in no statistically significant difference between the likelihood of exporting based on export orientation. The Null hypothesis was accepted.

Kariv (2011) noted that higher levels of business success are more prevalent among business owners whose entrepreneurial goals upon starting their businesses were to pursue a unique strategic opportunity. Entrepreneurs who were forced to start businesses due to economic stressors, such as under employment, or unemployment, were less likely to be as successful in business as those who did not (Kariv, 2011). This belief is borne out in the current research to the extent to which exporting may represent a higher level of success, business potential, or engagement, than refusal to export.

The second hypothesis (H2) asserted that women business owners who invest in technology would be more likely to engage in exporting than those who do not invest in technology. The literature maintains that investment in technology is an indicator of potential export involvement. However, this research did not confirm that hypothesis. Technology engagement was less effective at discriminating between exporters and non-exporters. While women business owners are typically fully involved in the selection of technology, there is evidence in the literature and from this study to suggest technology is viewed more as a way to increase workplace flexibility than as a means to increase productivity and effectiveness.

As noted by Chandra (2006) the evidence is clear that organizations must be able to adapt to their environments through the use of current innovation and technology if they want to engage, and be successful in, exporting. The evidence from this study is that women business owners are not yet using technology to fully aid in business growth and it is unlikely they will move to exporting status without it. It appears there may be a knowledge gap in the understanding by female entrepreneurs in regards to how to use technology as a growth tool. Recommendations include encouraging governments and small business centers to promote the need for women business owners to acquire knowledge in the use of technology as a tool to grow their business entities. This hypothesis was not confirmed in the analysis. The regression resulted in no statistically significant link between the increased likelihood of exporting based on technological investment. The Null hypothesis was accepted.

The third hypothesis (H3) asserted that women business owners who invest in research and development will be more likely to engage in exporting than those who do not invest in research and development. Stoian and Rialp-Criado (2010) reported that key export influencers were risk-

tolerance and innovativeness (which in much of the literature is categorized as research and development). This research hypothesis was confirmed in this research and the Null hypothesis was rejected.

The economic benefits of exporting are clear. Women business owners represent a significant portion of the small and medium sized business sector. It is reasonable to suggest that government policy needs to be directed towards helping women business owners bridge the gap between their current levels of research and development and what is actually necessary to increase business growth. Only 32.1% of women in this study reported being involved in research and development, but there was a statistically significant connection between investing in R&D and exporting.

In conclusion, these results differ from those of other studies focusing on influencers of export activities among women business owners. However, relatively few of those interviewed were actively engaged in technology and most did not engage, or plan to engage, in export activities. Possibly, a larger sample would have produced in a different result, or perhaps women business owners in Atlantic Canada respond differently than entrepreneurs elsewhere. Further research, including research about whether or not R&D investment is sector related, is recommended.

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