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Do purchasing managers discriminate against supply firms owned and run by women?

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Do purchasing managers discriminate against supply firms owned and run by women? Based on the literature on gender discrimination in business, we hypothesized that purchasing managers do not discriminate against supply firms owned and run by women, but only when they are unfamiliar with the supply firm. We tested this hypothesis by conducting an experiment in which we manipulated three variables: gender of supply-firm owner/manager, gender of purchasing manager, and familiarity (purchasers' familiarity versus no-familiarity with owner). This $2 \times 2 \times 2$ factorial design generated four different scenarios that were administered to a sample of corporate purchasing managers in the United States ($N = 272$), who responded to questions pertaining to constructs from Ajzen's theory of planned behavior. The results of this experiment provided directional support for the hypothesis (that is, the results were not statistically significant). We explain these results and encourage future research on this topic.

Keywords: women-owned enterprises; purchasing managers; discrimination

Les responsables des achats font-ils de la discrimination à l'encontre des fournisseurs dont les sociétés sont détenues et dirigées par des femmes? Sur la base de la bibliographie existante relative à la discrimination basée sur le genre dans les affaires, nous avons formulé l'hypothèse selon laquelle les responsables des achats feraient effectivement de la discrimination à l'encontre des fournisseurs dont les sociétés sont détenues et dirigées par des femmes, mais seulement lorsqu'ils ne connaissent pas le fournisseur. Nous avons testé cette hypothèse en menant une expérience s'appuyant sur trois variables: le genre du ou de la propriétaire ou responsable de l'entreprise, le genre du ou de la responsable des achats et le degré de connaissance de l'entreprise (bonne connaissance ou non du ou de la propriétaire, de la part des acheteurs). Ce modèle factoriel en $2 \times 2 \times 2$ a généré quatre scénarios différents qui ont été appliqués à un échantillon de responsables d'achats de sociétés basées aux États-Unis ($N = 272$), qui ont répondu à des questions en lien avec les thèses de la théorie d'Ajzen sur le comportement planifié (Ajzen 1991). Les résultats de cette expérience sont allés dans le sens de l'hypothèse (à savoir que les résultats n'ont pas été statistiquement significatifs). Nous expliquons ces résultats et encourageons d'autres recherches sur le sujet.

Mots-clés: entreprises détenues par des femmes; responsables des achats; discrimination

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Introduction

Women-owned enterprises in the USA have made impressive progress in the past few years (see Schlanger 2014; Center for Women's Business Research 2005, 2006). For instance, in 2013, 13% of all venture capital deals went to women entrepreneurs, compared with only 4% in 2004 (Schlanger 2014). The following statistics from the Center for Women's Business Research (2005, 2006) also speak of the progress. Between 1997 and 2006, the number of women-owned businesses grew nearly twice as fast (42%) as that of all firms (24%). Firms that were at least 50% owned by women amounted to around 10.4 million, constituting more than 50% of all privately held firms. Women-owned enterprises are also contributing significantly to the economic well-being of the society. Start-ups run and owned by women are about 20% more likely to generate revenue than their male counterparts (Schlanger 2014). They generated more than \$1.9 trillion in sales and employed 12.8 million people in 2006; and in 2005, they were estimated to have spent \$546 billion annually on salaries and benefits (Center for Women's Business Research 2005, 2006). The US Census Bureau's 2007 Survey of Business Owners also shows similar findings (SBO 2007)

Though these enterprises are proving to be a powerful economic force, they face unique barriers in the marketplace. In the venture capital market, in spite of the progress, still an overwhelming majority of deals (87%) went to men (Schlanger 2014). The Center for Women's Business Research (2005) also indicates that in the corporate supplier market, women-owned enterprises obtained only 4% of the market share in 2003. Further, the US Census Bureau's 2007 survey of business owners indicates that women-owned firms relatively declined in such performance categories as sales, employment, and payroll in 1997–2007, compared with men-owned enterprises (Coleman Forthcoming).

One may ascribe the disadvantages that women-owned enterprises encounter to such attributes as the size and age of these firms. For example, compared with 6% of men-owned enterprises, only 3% of women-owned enterprises had revenues exceeding \$1 million (Center for Women's Business Research 2006). In 2007, this number has decreased to 2% (SBO 2007). Despite the decline, the Center for Women's Business Research (2005) indicates that the majority of women entrepreneurs aspire growth (86% African-American, 71% Asian, 80% Caucasian, and 84% Latina). Menzies, Diochon, and Gasse (2004) also found that male and female entrepreneurs do not significantly differ regarding the desired size of their firms, based on a survey of new entrepreneurs in Canada.

Without a doubt, both men-owned and women-owned enterprises face significant challenges in developing their business. Yet, hurdles for women-owned enterprises sometimes seem to be higher than those for men-owned enterprises (Brush et al. 2004). Along this line of thought, we investigate the unique challenges that women-owned enterprises face in the context of organizational buying behavior. In particular, we examine whether women entrepreneurs (representing supply firms) face discrimination in the marketplace by purchasing managers—*whether purchasing managers make buying decisions more in favor of men- than women-owned supply firms.*

Literature review

Research has shown that women are often hampered by gender stereotypes in the workplace. The barriers they face are oftentimes described in such terms as 'glass ceilings,' 'glass walls,' and 'glass cliffs' (see Elsesser Forthcoming). Although overt gender discrimination is legally prohibited and has been minimized in the workplace, covert

discrimination is still prevalent (Cortina 2008). For example, in examining the talking patterns of US Senators on the Senate floor, Brescoll (2011) found that there is a strong and positive relationship between power and volubility for male senators, but that such a pattern does not exist for women. The difference is explained by the female senators' concern of negative consequences of volubility, such as backlash.

In entrepreneurship, there has been relatively little research on barriers to women-owned enterprises (see Brush 1992; Gatewood et al. 2003). Among those studies on perceptions and attitudes of market players that interact with women entrepreneurs or women-owned enterprises, findings have been mixed. Some studies have reported that women entrepreneurs perceive discrimination (for example, Read 1994; Buttner and Rosen 1992), while others uncovered evidence of discrimination (for example, Buttner and Rosen 1988; Fay and Williams 1993; Coleman 2000; Carter et al. 2007; Gatewood et al. 2009). Still others disputed the notion of discrimination with empirical evidence (for example, Read 1994; Fabowale, Orser, and Riding 1995; Haines, Orser, and Riding 2009). Most of these studies were conducted in the context of credit and equity acquisitions.

To illustrate, in a comparative study of the experiences of male and female business owners in raising finance from banks, Read (1994) showed that 12.5% of women business owners felt that they received unfair or discriminatory treatment from their bank because of their gender. Further, Buttner and Rosen (1992), in a study on male and female entrepreneurs' perceptions of the reasons for loan rejections, found that women tended to attribute loan rejections to gender bias more often than men did. These studies indicate that women, to some degree, perceive some form of discrimination or hostility in their effort to obtain loans from a bank. Brophy (1989) observed that these difficulties could be attributed to attitudes held by representatives of male-dominated institutions.

While the above studies indicate perceived discrimination, other studies revealed evidence of bias or discrimination. In exploring bank loan officers' perceptions of characteristics of successful entrepreneurs, Buttner and Rosen (1988) found that bank loan officers attributed characteristics of successful entrepreneurs more to men than to women. Fay and Williams (1993) also found that education played a more important role for women than for men in acquiring a loan (see also Gatewood et al. 2009). Further, Coleman (2000) found that women obtained credit under less favorable terms: although women were given equal access to capital, they paid higher interest rates and required more collateral than men did (see also Riding and Swift 1990). McKechnie, Ennew, and Read (1998) also reported discriminating behaviors in the personal interactions between female business owners and bank managers. More recently, Cole and Mehran (2011) found that women-owned firms are more likely to be discouraged from applying for credit, although they are unlikely to be denied credit more than men when they apply.

In spite of reported perceived discrimination and ample empirical evidence of gender-based discrimination, as indicated above, some studies revealed different findings. Read (1994) found that there were more similarities than differences between male and female entrepreneurs in their experiences of dealing with banks. Fabowale, Orser, and Riding (1995) reported no difference in the rate of loan rejections or terms of credit between men and women business owners (see also Haines, Jr. et al. 2009; Orser, Riding, and Manley 2006; Cole and Mehran 2011).

In light of the perceived discrimination and unfairness, several researchers uncovered factors to explain the uneven treatment by bank loan officers. Riding and Swift (1990) reported that women entrepreneurs received less-favorable financing conditions, but that women entrepreneurs also tended to be younger and have smaller firms than their male

counterparts. This finding was corroborated by Coleman (2000, 2002), who pointed out that small size and limited prospect for growth placed many women-owned enterprises at a disadvantage in dealing with lenders (see also Cole and Mehran 2011).

In light of available research, we conclude that research on the barriers for women entrepreneurs or women-owned enterprises remains inconclusive. This conclusion prompted us to conduct the current study to further understand this issue. Whereas the majority of studies on women's entrepreneurship have been conducted in the context of capital acquisition, which plays an essential role in starting and growing a business, other contexts are equally important for the success of women-owned enterprises. For instance, these enterprises also need to interact with customers, suppliers, employees, and so on. Only by understanding the potential difficulties women-owned enterprises face in different contexts can we obtain a more accurate and full picture of the nature of the barriers that they may encounter.

As mentioned previously, women-owned enterprises hold a minuscule share of the corporate supplier market. Perhaps one reason is that most of the women-owned enterprises are clustered in industries that do not produce supplies needed by corporations, just as they are mostly clustered in industries that are unappealing to financiers (see Gatewood et al. 2009). Another reason may be that they face discrimination as corporate vendors. One study, conducted by Martin and Simmerman (2008), investigated Wal-Mart Stores, Inc.'s vendor-screening program for smaller manufacturers. However, the study found no difference in the company's product evaluations based on either gender or race. Yet, studies of this nature in this context are very limited. *Given the conundrum of the very small market share of women-owned enterprises in the corporate supplier market, this paper attempts to further explore whether discrimination plays a role in corporate purchasers' decision making.*

Conceptual development and hypotheses

In the past few decades, due to the enforcement of the Civil Rights Act of 1964 and related reforms in the USA, blatant discrimination based on gender and race in the workplace and in the society in general has been declining (for example, Benokraitis 1997; Gottschalk 1997). Societal attitudes toward women's employment and their career aspirations have become open and accepting. Further, an increasing number of women today have also opted to start their own businesses. Yet, women have far from achieved equality with men. Occupational segregation, gender pay gap, and glass ceiling are among the issues that contemporary women still face in the workplace. In entrepreneurship, women-owned enterprises generating revenues exceeding \$1 million are still a tiny minority (<https://www.census.gov/econ/sbo/07menu.html>, retrieved 11/6/13) and women entrepreneurs also face systemic disadvantage in the marketplace (Bosse and Taylor 2012).

Though societal attitudes toward women have changed for the better, biases resulting from traditional stereotypes of women's role in the society are still alive and well at the workplace and act as major hurdles for women's further equality. Such biases – that women are inferior in work-related skills – are now often manifested in the form of covert discrimination (for example, Dovidio and Gaertner 1998; Brief et al. 2000), perhaps due to increasing social acceptance of women in the workplace and the illegal stance of overt discrimination. Covert discrimination is subtle, insidious, and ambiguous; often with no known intention to harm the target, the instigator may even have 'rational, non-discriminatory explanations for the conduct' (Cortina 2008). Aversion and selective (in) civility are among the symptoms of covert discrimination (Cortina 2008). In the gender

studies literature, covert discrimination is referred to as ‘modern sexism’ (for example, Swim et al. 2003), ‘contemporary sexism’ (Jackson, Esses, and Burris 2001), and ‘neosexism’ (for example, Tougas et al. 1995).

Bosse and Taylor (2012) maintain that women entrepreneurs face a second glass ceiling in the market place and experience a systemic disadvantage in acquiring financing. Given the abysmal market share they hold in the corporate supplier market, as mentioned previously, this systemic disadvantage may not be constrained to financing only. The authors also attributed the disadvantage to such factors as differential treatment of women as out-group members, women entrepreneurs’ lack of social capital, bias against women, and women’s low self-confidence (Bosse and Taylor 2012). Bias against women, however, does not usually arise from malice or ill will (Bosse and Taylor 2012) – the instigator mostly has no desire to intentionally harm a female entrepreneur. This corresponds with our notion of covert discrimination. We maintain that, given that the traditional stereotypes of women’s role as being in the family, covert discrimination is at least still one factor that contributes to this systemic disadvantage.

In the context of corporate procurement, covert discrimination may occur especially when a purchaser does not personally know a female entrepreneur, as stereotypes are more likely to be activated toward an unfamiliar than a familiar person who falls into a social category (Fiske 1998). The evocation of stereotypes diminishes as one’s exposure to the target increases (Fiske 1998). In the leadership literature, for example, studies using laboratory experiments, such as vignettes, where little information is available about the studied leaders, show greater gender bias (Johnson et al. 2008; Eagly, Makhijani, and Klonsky 1992), while studies on actual leaders in the workplace reveal little or no bias (Eagly, Karau, and Makhijani 1995). Based on Fiske (1998), the bias or lack of it, based on (lack of) exposure, should generalize to most situations where stereotypes apply, including women as entrepreneurs. In other words, if a female and male entrepreneur sell the same products of comparable quality, corporate purchasers are unlikely to discriminate against a woman supplier that they know well; however, they are more likely to discriminate against a woman supplier that they do not know.

Further, modern sexism has a manifestly positive component to it. Benevolent sexism, based on the notion that women need to be protected, is characterized by subjectively positive evaluations of women (Glick and Fiske 1996). Although research has shown detrimental effects of benevolent sexism on women in the workplace (for example, Becker and Wright 2011; Dardenne, Bollier, and Dumont 2007), one can argue that there may be occasional or temporary benefits for receivers of sexism (for example, contracts issued to female-owned supply firm more so than male-owned supply firms). This chivalrous attitude may particularly be evoked toward women who they are familiar with in the workplace or in the marketplace.

Based on this discussion, we hypothesize an interaction effect between gender of the supply firm (women- versus men-owned supply firms) and familiarity of the owner of the supply firm (high versus low familiarity) on purchase intention of purchasing managers. Further, as members of the disadvantaged group (for example, women purchasers) often help reinforce the bias and ideology of the dominant group and may also engage in similar discrimination of their own group in similar situations (Sidanius and Pratto 1999), we hypothesize that gender of purchasers plays little role in the above interaction effect. Specifically, when purchasing managers are unfamiliar with a supplier, they are more likely to express intention to purchase from a male supplier, even though the quality of the product from both male and female suppliers is comparable. In contrast, when purchasing managers are familiar with the supplier, they are equally or more likely to want to

purchase from a female supplier than from a male supplier, even though the quality of the product from both male and female suppliers is comparable. Further, female purchasing managers and male purchasing managers do not differ significantly in their intention to purchase.

To further examine the underlying psychological mechanism, we also test the stated hypotheses based on Ajzen's theory of planned behavior. According to the theory of planned behavior (Ajzen 1991), one's intention to perform certain behavior is directly explained by three factors: one's Attitude toward the behavior (A_{tb}), Subjective Norm (SN), and Perceived Behavioral Control (PBC). A_{tb} signals one's favorable/unfavorable assessment of the behavior. SN, on the other hand, indicates one's perceived social pressure to perform the behavior. Finally, PBC reflects one's perception of the facility with which one performs the behavior. Studies employing the theory of planned behavior have found general support for the model (for example, Ajzen 1991; Chan and Lau 2001; Krueger, Reilly, and Carsrud 2000).

Given the general validity of the model, for this study, we infer that the purchasers' discrimination in their intention to purchase from women-owned enterprises can be extended to the predictive variables of purchase intention. In particular, we examine the two variables that were found to be significant, namely A_{tb} and SN; we disregard PBC for the current study due to its lack of definitive support from past studies (see Ajzen 1991; Krueger, Reilly, and Carsrud 2000). In fact, A_{tb} and SN are the original direct predictors of behavioral intention in Fishbein and Ajzen's original theory of reasoned action (1981). In an extensive meta-analysis of 87 separate studies with a total sample of 12,624, Shepard, Hartwick, and Warshaw (1988) reported that a frequency-weighted average correlation for the combined effect of A_{tb} + SN on behavioral intention was 0.66 ($p < 0.001$). Consequently, we set out to test the following hypotheses:

H1a: There is no significant difference between purchasing managers' **intention to purchase** from male versus female suppliers.

H1b: There is no significant difference between purchasing managers' **attitude toward purchasing** from male versus female suppliers.

H1c: There is no significant difference between purchasing managers' **subjective norm related to purchase** from male versus female suppliers.

H2a: There is no significant difference between purchasing managers' **intention to purchase** from familiar versus unfamiliar suppliers.

H2b: There is no significant difference between purchasing managers' **attitude toward purchasing** from familiar versus unfamiliar suppliers.

H2c: There is no significant difference between purchasing managers' **subjective norm related to purchase** from familiar versus unfamiliar suppliers.

H3a: There is no significant difference between male and female purchasing managers' **intention to purchase**.

H3b: There is no significant difference between male and female purchasing managers' **attitude toward purchase**.

H3c: There is no significant difference between male and female purchasing managers' **subjective norm related to purchase**.

H4a: There is an interaction effect between familiarity and gender of supplier on **purchase intentions** of purchasing managers in that purchasing managers are likely to express higher intentions to purchase from male than female suppliers under low than high familiarity conditions.

H4b: There is an interaction effect between familiarity and gender of supplier on **attitude toward purchase** of purchasing managers in that purchasing managers are likely to express a more favorable attitude toward purchasing from male than female suppliers under low than high familiarity conditions.

H4c: There is an interaction effect between familiarity and gender of supplier on **subjective norm** of purchasing managers in that purchasing managers are likely to express higher subjective norms related to purchasing from male than female suppliers under low than high familiarity conditions.

Method

Procedure

An appropriate research design to test the interaction effects among gender of the supply firm, gender of purchasing manager, and purchaser's familiarity with the owner on purchase intention, attitude toward purchase, and subjective norm is an experimental design – a $2 \times 2 \times 2$ factorial design treating **gender of the supply firm**, **gender of purchaser**, and **familiarity with the owner** as three independent variables while intention, attitude, and subjective norm as dependent variables. Statistically speaking, this research design translates into a three-way between-subjects MANOVA design. This design necessitated the construction of **four different scenarios** (see the four scenarios in the appendix). In this context, a general scenario was established about a supply firm, called Millennium Computing, which manufactures and sells a new generation of hand-held computing devices. The owner of this supply firm built the business from the grounds up. The owner is married with two children and has about eight years of experience working for a high-tech company. The owner has 10 employees and is expected to hire more as the business expands. There are other suppliers of hand-held computing devices but all the suppliers have comparable product quality and prices. The respondent (who is in essence a purchasing manager) is asked to assume that this scenario is real, that he or she has the technological expertise to make this selection, and that he or she has to choose a supplier within the next six months.

Sampling and data collection

The study used a randomly generated sample of 2600 subjects, representing 78 industries in the USA from the database of the Institute for Supply Management, the largest supply management association in the world, and a highly respected organization. The sample also represented corporate purchasing personnel of different ranks in the US. Approval by the Institutional Review Board at the researchers' institution was obtained before questions based on a scenario were mailed to the subjects. Assurance of anonymity in participation was given in the cover letter with an emphasis on a summary of data in our final report; it was also made known to the participants in the cover letter that the Institute of Supply Management provided their contact information. One-hundred subjects were invited to participate in a pilot mail study to test the waters. The pilot study generated a 17% response rate. The remaining 2500 subjects were then invited to participate in the full study. Among them, 1450 (58%) were male and 1050 (42%) female. Two-hundred and seventy-seven completed surveys were returned; among them 272 ($N = 272$) were usable. Another 71 surveys were returned without completion due to the subjects' job changes and other reasons. In all, the survey resulted in an 11.4% response rate, excluding the 71 uncompleted, returned surveys.

Experimental treatments*Manipulating gender of the supply firm*

This independent variable was experimentally manipulated by presenting purchasing managers with one of two sets of scenarios: (1) supply firm owned and run by a woman named “Jennifer Lee” (see Scenarios 1 and 2 in the appendix), and (2) supply firm owned and run by a man named “Steve Ward” (Scenarios 3 and 4).

Manipulating familiarity of the owner of the supply firm

This independent variable was also experimentally manipulated by presenting purchasing managers with one of two sets of scenarios: (1) a no-familiarity cue: ‘suppose that you have never heard of Millennium Company or _____ (owner’s name: Jennifer Lee versus Steve Ward) and you do not know other suppliers either’ (Scenarios 1 and 3); and (2) a familiarity cue: ‘suppose that you got to know a few suppliers, including _____ (owner’s name: Jennifer Lee versus Steve Ward), (her versus his) company Millennium Computing, and its products at a trade show’ (Scenarios 2 and 4). See scenarios in the appendix.

Finally, *Gender of purchaser* was elicited from the respondents as part of their demographic information in the survey and was also manipulated in the statistical analysis.

The dependent measures

The dependent measures in this study are purchaser’s intention, attitude toward purchase, and subjective norm. To reiterate, each respondent (who is in essence a purchasing manager) was asked to assume that scenario presented in the survey questionnaire, that he or she has the technological expertise to plan a purchase, and that he or she has to choose a supplier within the next six months. Two items were used to capture purchase intention, attitude, and subjective norm respectively. The first item for intention: ‘Given that your company has a need for hand-held computing devices, how likely are you to order this product from Millennium?’ The response scale involved a 7-point rating scale: 1 = very unlikely, 2 = unlikely, 3 = somewhat unlikely, 4 = neither likely nor unlikely, 5 = somewhat likely, 6 = likely, 7 = very likely. The second item: ‘There is ___ chance that I would buy hand-held computing devices from Millennium, if my company has a need for such a product.’ The response scale involved a 7-point rating scale: 1 = very remote, 2 = remote, 3 = somewhat remote, 4 = neither remote nor good, 5 = somewhat good, 6 = good, 7 = very good.

For attitude toward purchase, the first item was intended to elicit a response of the instrumental dimension: ‘I feel that purchasing hand-held computing devices from Millennium Computing will be ____.’ The response scale involved a 7-point rating scale: 1 = extremely worthless, 2 = worthless, 3 = somewhat worthless, 4 = neither worthless nor worthwhile, 5 = somewhat worthwhile, 6 = worthwhile, and 7 = extremely worthwhile. The second item was intended to elicit responses of the affective dimension: ‘I am ___ in purchasing from Millennium Computing.’ The response scale involved a 7-point rating scale: 1 = extremely uninterested, 2 = uninterested, 3 = somewhat uninterested, 4 = neither uninterested nor interested, 5 = somewhat interested, 6 = interested, and 7 = extremely interested.

Finally for subjective norm, the first item was ‘The people whose opinions I value at work would think that I ___ purchase hand-held computing devices or such products from a company such as Millennium Computing.’ The 7-point rating scale that is used is

Table 1. Demographic profile of the respondents ($N = 272$).

Gender	<i>N</i>	%
Female	86	31.6
Male	185	68
Missing	1	0.4
Age		
25–29	8	2.9
30–39	35	12.9
40–49	77	28.3
50–59	117	43
60–69	26	9.6
70–75	1	0.4
Missing	8	2.9
Race		
Asian, Pacific Islander, Indian (India)	6	2.2
Black/African American	4	1.5
Hispanic	8	2.9
Native Indian or Alaskan native	1	0.4
White	246	90.4
Other, including mixed	3	1.1
Missing	4	1.5
Education		
High school or GED	8	2.9
Trade or technical school beyond high school	5	1.8
Some college	36	13.2
Two years associate degree	16	5.9
Four/five-year Bachelor's Degree	122	44.9
Professional Degree in Medicine, Law, etc.	1	0.4
Master's Degree	78	28.7
Doctorate	2	0.7
Missing	4	1.5

the following: 1 = absolutely should not, 2 = should not, 3 = somewhat should not, 4 = neither should not nor should, 5 = somewhat should, 6 = should, and 7 = absolutely should. The second item was 'The people whose opinions I value at work would want me to purchase hand-held computing devices and related products from a company such as Millennium Computing.' The 7-point rating scale that is used is the following: 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither disagree nor agree, 5 = somewhat agree, 6 = agree, and 7 = strongly agree. (See the measures of the three dependent variables in the appendix.)

Results

We break down the discussion of the results in three parts: (1) demographic and experience profiles of the respondents, (2) descriptive and reliability statistics of the dependent measures, and (3) hypothesis-testing results.

Demographic and experience profiles of the respondents: Table 1 shows the demographic profile of the respondents. About two-thirds of the respondents were male (68%,

$n = 185$) and one-third were female (31.6%, $n = 86$). In terms of age, the median was 50 and the average was 49; and the ages ranged from 25 to 72. Regarding the racial background, 90.4% ($n = 246$) of the respondents were white; Asians, Pacific Islanders, and Indians constituted 2.2%, Black/African Americans 1.5%, Hispanics 2.9%, and Native Indians or Alaskan Natives constituted 0.4% of the total respondents. In terms of their educational backgrounds, the average level of education was slightly higher than four-year college, which was also the median level of education (44.9%, $n = 122$). Further, the respondents who had obtained a master's degree constituted 28.7% ($n = 78$). Regarding the respondents' years of experience both with their current employers and industries, the average of the former was 12.84 years and that of the latter 19.26. In short, the respondents represented, generally speaking, a diverse group of male and female purchasers, in terms of age, racial backgrounds, educational backgrounds, and experience. Table 2 shows the experience profile of the respondents.

Descriptive and reliability statistics of the dependent measures: Table 3 reports the descriptive statistics of the observed variables used in this study. Regarding skewness, the table shows that skewness statistics of the observed variables ranged from -0.12 to -0.662 and kurtosis statistics ranged from 0.352 to 0.82. In a discussion of the robustness of test statistics, Curran, West, and Finch (1996) regarded skewness values ranging from 2.00 to 3.00 (absolute values) and kurtosis scores ranging from 7.00 to 21.00 (absolute values) as moderately nonnormal. Further, they regarded skewed values greater than 3.00 and kurtosis values greater than 21.00 to characterize extreme nonnormality. Given that the skewness statistics and kurtosis values as shown in Table 3 lay far below those moderately nonnormal ranges, the variables of this study were determined as normally distributed.

Table 2. Experience profile of the respondents ($N = 272$).

Years of experience with current employer	<i>N</i>	%
1–5	74	27.2
6–10	66	24.3
11–15	43	15.8
16–20	30	11
21–30	34	12.5
31–40	22	8.1
40+	0	0
Missing	3	1.1
<hr/>		
Years of experience in current industry		
1–5	32	11.8
6–10	36	13.2
11–15	31	11.4
16–20	50	18.4
21–30	90	33
31–40	28	10.3
40+	2	0.7
Missing	3	1.1

Table 3. Descriptive statistics of the observed variables.

Observed variables	Min Statistic	Max Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
					Statistic	Std. Error	Statistic	Std. Error
A1	1	7	4.37	1.083	-0.662	0.148	0.706	0.295
A2	1	7	4.57	0.934	-0.12	0.148	0.82	0.294
SN1	1	6	3.86	1.048	-0.202	0.148	0.441	0.295
SN2	1	6	4.02	1.069	-0.391	0.148	0.557	0.294
I1	1	7	4.13	1.005	-0.275	0.148	0.567	0.294
I2	1	7	4.25	1.168	-0.38	0.148	0.352	0.294

Note: A = Attitude; SN = Subjective Norm; I = Intention.

The Chronbach Alphas for Attitude, Subjective Norm, and Intention were 0.666, 0.78, and 0.879, respectively, demonstrating reasonable reliability (internal consistency) overall. As such, the means of the items for each construct were averaged constituting the final dependent variables used in the statistical analysis.

Hypothesis-testing results: A three-way MANOVA was performed to determine the effects of gender of supplier, gender of purchasing manager, and purchasing managers' familiarity/unfamiliarity on purchase intention, attitude toward purchase, and subjective norm. We expected no main effects for the three independent variables: gender of supplier, gender of purchasing manager, and familiarity with supplier (H1–H3). Instead, we expected an interaction effect between gender of supplier and familiarity on purchase intention, attitude toward purchase, and subjective norm (H4). Specifically, we expected that when purchasing managers are unfamiliar with a supplier, they are likely to express a higher intention to purchase from a male than a female supplier (H4a), have a more favorable attitude toward purchasing from a male than a female supplier (H4b), and are more likely to be influenced by subjective norm (social pressure) to purchase from a male supplier than a female supplier (H4c). In contrast, when purchasing managers are familiar with the supplier, they are equally or more likely to purchase from a female than from a male supplier (H4a), are equally or more likely to have a favorable attitude toward purchasing from a female supplier than a male supplier (H4b), and are equally or more likely to be influenced by subjective norm to purchase from a female supplier than a male supplier (H4c).

Table 4 presents the descriptive statistics of the MANOVA and Table 5 presents the tests of between-subjects effects. As expected, the results indicated no significant main effects for gender of supplier (H1a, H1b, and H1c), familiarity/unfamiliarity (H2a, H2b, and H2c), and gender of purchasing manager (H3a, H3b, and H3c) on all three dependent variables (purchase intention, attitude toward purchase, and subjective norm) (see Table 5). We hypothesized an interaction effect between gender of supplier and familiarity/unfamiliarity with supplier on intention (H4a), attitude (H4b), and subjective norm (H4c), but unfortunately the interaction terms between gender of supplier and familiarity were not statistically significant either ($F = 1.394, p = .239$ for intention; $F = .449, p = .503$ for attitude; $F = 2.046, p = .154$ for subjective norm). With regard to gender of purchaser, it did play little role in intention, attitude, and subjective norm, as hypothesized¹ (see Table 5).

We further explored the interaction effect between gender of supplier and familiarity. As such we decided to closely examine the pattern of cell means (see Table 4). The cell

Table 4. MANOVA descriptive statistics.

	Purchaser gender	Gender of supplier	Familiarity	Mean	Std. Deviation	N		
Purchase intention	Female	Female	Unfamiliar	4.15	1.162	23		
			Familiar	4.55	1.373	19		
		Male	Unfamiliar	4.29	1.045	19		
			Familiar	4.26	.561	25		
		Male	Female	Unfamiliar	4.25	1.049	55	
			Male	Unfamiliar	4.28	.838	44	
	Total	Female	Unfamiliar	4.22	1.077	78		
			Familiar	4.25	1.210	61		
		Male	Unfamiliar	4.29	.897	63		
			Familiar	4.06	.864	69		
		Attitude toward purchase	Female	Female	Unfamiliar	4.174	1.018	23
					Familiar	4.737	1.159	19
Male	Unfamiliar			4.421	.692	19		
	Familiar			4.500	.577	25		
Male	Female			Unfamiliar	4.536	.922	55	
	Male			Unfamiliar	4.432	.670	44	
Total	Female		Unfamiliar	4.429	.959	78		
			Familiar	4.525	1.051	61		
	Male		Unfamiliar	4.429	.671	63		
			Familiar	4.500	.762	69		
	Subjective norm (SN)		Female	Female	Unfamiliar	3.783	1.085	23
					Familiar	4.211	1.367	19
Male		Unfamiliar		4.237	.888	19		
		Familiar		3.960	.576	25		
Male		Female		Unfamiliar	4.000	.995	55	
		Male		Unfamiliar	3.898	.782	44	
Total		Female	Unfamiliar	3.773	.905	44		
			Familiar	3.936	1.020	78		
		Male	Unfamiliar	3.992	1.164	61		
			Familiar	4.000	.823	63		
		Total	Unfamiliar	3.841	.802	69		
			Familiar	3.841	.802	69		

means shown in Table 4 reveal a general pattern consistent with our hypotheses. When unfamiliar with supplier, purchasing managers seem to show a greater intention to purchase from a male-owned enterprise (mean = 4.29) than from a female-owned enterprise (mean = 4.22) and are more influenced by subjective norm to purchase from a male-owned enterprise (mean = 4.00) than from a female-owned enterprise (mean = 3.936); their attitude toward purchasing from female and male-owned enterprises, nevertheless, are shown to be

Table 5. Tests of between-subjects effects.

Source	Dependent variable	Type III sum of squares	DF	Mean square	F	Sig.	Partial Eta squared
Purchaser gender	Intention	1.647	1	1.647	1.584	.209	.006
	Attitude	.015	1	.015	.020	.888	.000
	Subjective norm	1.422	1	1.422	1.539	.216	.006
Gender of supplier	Intention	.285	1	.285	.274	.601	.001
	Attitude	.002	1	.002	.002	.960	.000
	Subjective norm	.001	1	.001	.001	.971	.000
Familiarity	Intention	.042	1	.042	.041	.840	.000
	Attitude	1.313	1	1.313	1.717	.191	.006
	Subjective norm	.024	1	.024	.026	.873	.000
Purchaser gender * Gender of supplier	Intention	.003	1	.003	.003	.955	.000
	Attitude	.007	1	.007	.009	.925	.000
	Subjective norm	.657	1	.657	.712	.400	.003
Purchaser gender * Familiarity	Intention	2.617	1	2.617	2.518	.114	.009
	Attitude	1.682	1	1.682	2.199	.139	.008
	Subjective norm	.532	1	.532	.575	.449	.002
Gender of supplier * Familiarity	Intention	1.449	1	1.449	1.394	.239	.005
	Attitude	.343	1	.343	.449	.503	.002
	Subjective norm	1.891	1	1.891	2.046	.154	.008
Purchaser gender * Gender of supplier * Familiarity	Intention	.187	1	.187	.180	.672	.001
	Attitude	1.577	1	1.577	2.062	.152	.008
	Subjective norm	1.708	1	1.708	1.849	.175	.007

the same (mean for both = 4.429). On the other hand, when they are familiar with the supplier, they show a greater intention to purchase from a female-owned enterprise (mean = 4.25) than from a male-owned enterprise (mean = 4.06); they also show a more favorable attitude toward purchasing from a female-owned enterprise (mean = 4.525) than from a male-owned enterprise (mean = 4.5); and they are more influenced by subjective norm to purchase from a female-owned enterprise (mean = 3.992) than from a male-owned enterprise (mean = 3.841). To reiterate, these noted differences generally seem to show a pattern of possible slight discrimination (as reflected in intention to purchase) against female-owned enterprises that are unfamiliar to the purchasers, and non-discrimination against and even slight partiality toward women-owned enterprises that are familiar to them, although these differences are not statistically significant. This discrimination can be attributed to attitude and subjective norm (the two predicting variables), which generally show similar patterns as intention in unfamiliar and familiar situations; one exception is that attitude is similar for both male and female suppliers in an unfamiliar situation. Overall, the results 'hint' to potential bias (including social bias as reflected in social norm) and possible discrimination against female suppliers who are unfamiliar to the purchasing managers and non-bias or discrimination against female supplier that are familiar to the purchasers.

Further, although gender of purchaser is shown to have no statistical significance in its influence on intention, attitude, and subjective norm, we suspect that there might be some underlying patterns, too, that are worth exploring. Consequently, we examined the cell means in [Table 4](#) and the interaction plots as shown in [Figures 1 and 2](#). [Figure 1](#) shows the three-way interaction plots when purchasers are unfamiliar with supplier and [Figure 2](#) shows such plots when the purchasers are familiar with supplier. As we see, there are two discernable patterns from the figures: when they are unfamiliar with a supplier, female purchasing managers, compared with their male counterparts, demonstrate lower levels of intention (mean = 4.15 vs. 4.25 for males), attitude (mean = 4.174 vs. 4.536 for males), and subjective norm (mean = 3.783 vs. 4.00 for males) for a female supplier; when they are familiar with a supplier, female purchasing managers, compared with their counterparts, demonstrate higher levels of intention (mean = 4.55 vs. 4.11 for males), attitude (mean = 4.737 vs. 4.429 for males), and subjective norm (mean = 4.211 vs. 3.893 for males) for a female supplier. Although these effects are not statistically significant, the overall pattern indicate that, when unfamiliar with a woman-owned enterprise, female purchasing managers, compared with their male counterparts, seem to have a less favorable attitude toward purchasing from such an enterprise, perceive less social pressure to purchase from it, and eventually are less likely to decide to purchase from it; on the other hand, when they are familiar with a woman-owned enterprise, female purchasing managers, compared with their male counterparts, seem to have a more favorable attitude toward purchasing from such an enterprise, perceive more social pressure to purchase from it, and eventually are more likely to purchase from it.

To conclude, as hypothesized, we did not find significant main effects for gender of supplier, familiarity/unfamiliarity, and gender of purchasing manager in relation to any of the three dependent variables (purchase intention, attitude toward purchase, and subjective norm; H1–H3). More importantly, although the results did not provide statistical support for our hypotheses of the interaction effects between gender of supplier and familiarity with supplier, we found a general pattern that provides directional support for H4. That is, there seems to be an interaction effect between familiarity and gender of supplier on purchase intentions, attitude toward purchase, and subjective norm of purchasing managers in that purchasing managers are likely to have a positive disposition toward purchase from male than female suppliers under low than high familiarity conditions.

Discussion

The study's findings, although inconclusive (that is, statistically nonsignificant), reveal a pattern of gender discrimination as hypothesized. Purchasing managers are more likely to buy from an unfamiliar male-owned supply firm than from an unfamiliar female-owned firm, even when the quality of their products is comparable. This tendency, although not statistically supported by the data of the present study, is consistent with a notion of modern covert discrimination: unlikely intending to harm an unknown female supplier, purchasing managers may subconsciously prefer to do business with an unknown male supplier than a female supplier; as a result, she loses out in her bid. That covert discrimination is particularly likely to occur to an unknown female entrepreneur may be due to gender bias – a generally low evaluation of women's competence based on stereotype, which not only reside with the purchasing managers, but their organizational superiors who exert an influence in their decision-making. In a situation when a female supplier is

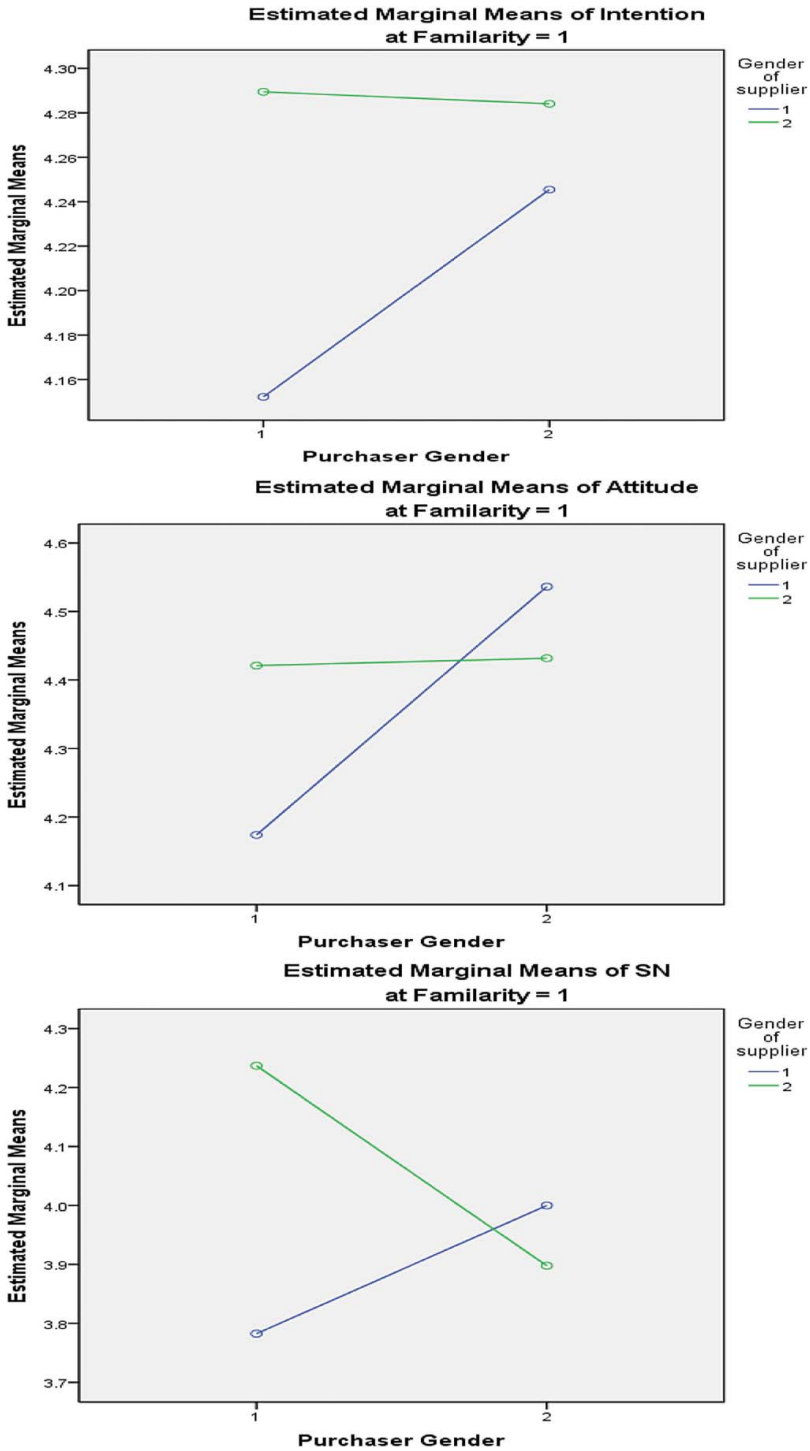


Figure 1: Gender of Supplier* Gender of Purchaser* Purchasers' Unfamiliarity with Supplier and Purchasers' Intention to Purchase, Attitude toward Purchase, and Subjective Norm (Gender: 1 = Female, 2 = Male; Familiarity: 1 = Not Familiar; 2 = Familiar)

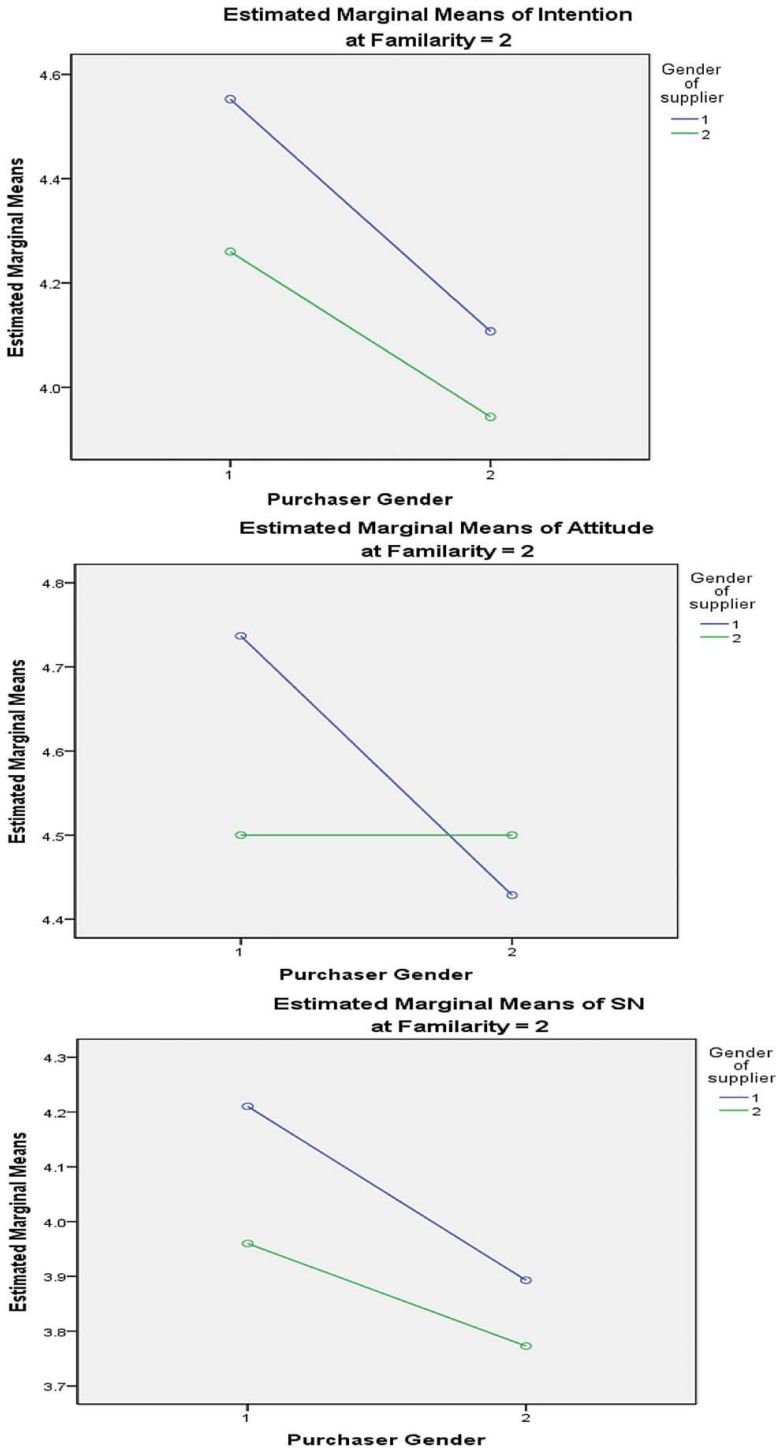


Figure 2: Gender of Supplier* Gender of Purchaser* Purchasers' Familiarity with Supplier and Purchasers' Intention to Purchase, Attitude toward Purchase, and Subjective Norm (Gender: 1 = Female, 2 = Male; Familiarity: 1 = Not Familiar; 2 = Familiar)

unknown to a purchasing manager, the stereotype is activated and substitutes for information in decision-making. This tendency may partly explain the systemic barrier that women entrepreneurs face (see Bosse and Taylor 2012). That is, women entrepreneurs face wide-spread covert/subtle discrimination in their interactions with market players, as they are, more often than not, unknown to purchasing managers, due to their general lack of strategic social networks (see Watson 2012).

Further, the finding that corporate purchasers are more likely to purchase from a female-owned supplier *when they are familiar with her* indicates that stereotype may play little role in decision-making in such situations. Moreover, if it is present, the gender stereotype could be manifested in the form of benevolent sexism, which benefits women entrepreneurs by helping them gain contracts; although it is, generally speaking, demeaning; and as a result, it reinforces gender inequality. Nevertheless, pragmatically speaking, the finding points to the importance for women to be in appropriate business networks. Once they know the right people, the barrier related to the gender stereotype may be significantly diminished.

But then let us consider the possibility of the null hypothesis – there is no gender discrimination *period*, irrespective of familiarity. Such a finding equally merits reflection. The feminist movement in Western developed countries, dating as far back as the 19th century, has brought about significant improvement in women's equality in society, though gender issues still persist in various forms and to varying degrees today. In the United States, particularly since the 1960s, various anti-discrimination laws have been enacted to protect women's rights as related to work; and employers have been encouraged, and in some cases required, to adopt affirmative actions to promote equality for women and minorities. As a result of the societal trend, some companies now adopt voluntary programs to promote women's success. The results of the current study indicating no statistically significant gender discrimination in corporate purchasing may be a celebratory validation of some degree of success of the laws, initiatives, and women's and men's efforts for gender equality and the progress that has been made with regard to equal treatment of women. A study of entrepreneurial experiences of women in Canadian high technology, echoing the findings of the current study, revealed that, despite 'labyrinth walls' and 'thorny floors' they experience, women entrepreneurs in technology do gain acceptance once they have established themselves as reliable competitors as the technology sector is mostly merit-based (Ezzedeen and Zikic 2012).

This implies that, even if the statistical nonsignificance of our study results can be further validated, the findings may not be generalized to female entrepreneurs or female-owned enterprises in non-technology sectors. The woman entrepreneur in the scenarios of this study, with eight years of experience, owns an enterprise that manufactures a technologically sophisticated product. This description implies that she is highly educated, experienced, and potentially well-connected. In other words, she may enjoy a higher social and professional status than women entrepreneurs in non-technology sectors. Thus, a conclusion cannot be made with regard to other women entrepreneurs. Further, the female protagonist in the scenarios, Jennifer Lee, may represent an educated white entrepreneur to corporate purchasers, who may otherwise respond differently to a name such as Mei Chan or Faulishina Jackson. In other words, race, ethnicity, national origin, combined with gender, may change the dynamics of social interactions and economic transactions significantly. Consequently, it would also be problematic to generalize the findings of non-discrimination to women entrepreneurs of all racial or ethnic backgrounds. In fact, a

study comparing minority and non-minority women business owners found that minority women business owners do perceive greater challenges than non-minority women business owners (Adkins and Samaras 2013).

These observations call for more research not only to replicate this study's findings but also to attempt to extend the generalizability of the findings using other stimuli in other situations. Moreover, the statistical nonsignificance of the observed pattern (gender discrimination under lack of familiarity conditions) may also mirror the progress in women's equality in developed countries such as USA and Canada. If so, future research should fine-tune the study by focusing on different groups of women from different demographic, socio-economic, and cultural backgrounds. Doing so should help develop better-tailored government and corporate policies to promote a more equitable playing field in the marketplace for all women entrepreneurs.

Future research should also ensure that the study finding is generalizable to the purchasing manager population at large. A key limitation of this study may lie in its low response rate (11.4%). There is, therefore, likely non-response bias. Future studies should address this limitation by obtaining a larger sample that is more representative of corporate purchasers. Additionally, since it is revealed to the participants that they are all members of the professional organization (that is, Institute for Supply Management) – even though anonymity was assured – social desirability effects may still have been at play to some degree when they responded to the scenario-based questions. Future research should also address this limitation by designing a study in a way that reduces such social desirability effects.

In conclusion, the study reveals a complex and nuanced pattern of slight discrimination against female-owned enterprises in the high technology sector. The general statistical nonsignificance in differential treatment of male- and female-owned firms, particularly firms that are unfamiliar to the purchasing managers, may mirror the progress of the societal efforts for gender equality; however, the underlying currents/patterns of discrimination of female-owned firms imply that discrimination still persists at some level, perhaps more in covert forms.

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Note

1. For intention as dependent variable, we obtained the following statistics: $F = .003, p = .955$ for gender of purchaser * gender of supplier; $F = 2.514, p = .114$ for gender of purchaser * familiarity; $F = .180, p = .672$ for gender of purchaser * gender of supplier * familiarity. For attitude as dependent variable, we obtained these statistics: $F = .009, p = .925$ for gender of purchaser * gender of supplier; $F = 2.199, p = .139$ for gender of purchaser * familiarity; $F = 2.062, p = .152$ for gender of purchaser * gender of supplier * familiarity. For subjective norm as dependent variable, we obtained these statistics: $F = .712, p = .400$ for gender of purchaser * gender of supplier; $F = .575, p = .449$ for gender of purchaser * familiarity; $F = 1.849, p = .175$ for gender of purchaser * gender of supplier * familiarity.

Notes on Contributors

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Appendix. Scenarios and the measurement of intention, attitude toward purchase, and subjective norm

Scenario 1: After planning for it for years, Jennifer Lee finally started her business, Millennium Computing, which manufactures and sells a new generation of hand-held computing devices. Married and a mother of two, aged 4 and 2, Jennifer has about eight years of experience working for a high-tech company. She has now hired about 10 employees and will hire more as business expands. She has a manufacturing facility located in the vicinity of her office. Jennifer's targeted customers are corporations. Jennifer is aware that there are other competitors in the market and that her products are comparable in terms of price and quality.

Suppose your company has a need for hand-held computing devices and you are responsible for choosing a supplier within the next six months and you have the right technological expertise to do so. Suppose also that you have **never heard of Millennium Computing** or Jennifer Lee and you do not know other suppliers either. Now an employee from Millennium Computing approaches you to sell their products.

Scenario 2: (The background information is the same as Scenario 1). Suppose your company has a need for hand-held computing devices and you are responsible for choosing a supplier within the next six months and you have the right technological expertise to do so. Suppose **you got to know a few suppliers**, including Jennifer Lee, her company Millennium Computing, and its products at a trade show. Now an employee from her company approaches you to sell their products.

Scenario 3: After planning for it for years, Steve Ward finally started his business, Millennium Computing, which manufactures and sells a new generation of hand-held computing devices. Married and a father of two, aged 4 and 2, Steve has got about eight years of experience working for a high-tech company. He has now hired about 10 employees and will hire more as business expands. He has a manufacturing facility located in the vicinity of his office. Steve's targeted customers are corporations. Steve is aware that there are other competitors in the market and that his products are comparable in terms of price and quality.

Suppose your company has a need for hand-held computing devices and you are responsible for choosing a supplier within the next six months and you have the right technological expertise to do so. Suppose also that you have never heard of Millennium Computing or Steve Ward and you do not know other suppliers, either. Now an employee from Millennium Computing approaches you to sell their products.

Scenario 4: (The background information is the same as Scenario 3). Suppose your company has a need for hand-held computing devices and you are responsible for choosing a supplier within the next six months and you have the right technological expertise to do so. Suppose you got to know a few suppliers, including Steve Ward, his company Millennium Computing, and its products at a trade show. Now an employee from his company approaches you to sell their products.

 Purchase Intention

1. Given that your company has a need for hand-held computing devices, how likely are you to order this product from Millennium?

Very unlikely	unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Likely	Very likely
1	2	3	4	5	6	7

2. There is a _____ chance that I would buy hand-held computing devices from Millennium, if my company has a need for such a product.

very remote	remote	somewhat remote	neither remote nor good	somewhat good	good	very good
1	2	3	4	5	6	7

Attitude toward purchase

1. I feel that purchasing hand-held computing devices from Millennium Computing will be _____

totally worthless	worthless	somewhat worthless	neither worthless nor worthwhile	somewhat worthwhile	worthwhile	extremely worthwhile
1	2	3	4	5	6	7

2. I am _____ in purchasing from Millennium Computing.

extremely uninterested	uninterested	somewhat uninterested	neither uninterested nor interested	somewhat interested	interested	extremely interested
1	2	3	4	5	6	7

Subjective norm

1. The people whose opinions I value at work would think that I _____ purchase hand-held computing devices or such products from a company such as Millennium Computing.

absolutely should not	should not	somewhat should not	neither should nor should not	somewhat should	should	absolutely should
1	2	3	4	5	6	7

2. The people whose opinions I value at work would want me to purchase hand-held computing devices and related products from a company such as Millennium Computing.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1	2	3	4	5	6	7
