

**Gender Status Beliefs in Entrepreneurship and Innovation:
Are Women Entrepreneurs Penalized?**

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ABSTRACT

In this article, I develop and empirically test the theoretical argument that widely shared cultural beliefs about men's and women's abilities in the area of entrepreneurship (i.e. "gender status beliefs") systematically influence the social interactions during which an entrepreneur, particularly an innovative entrepreneur, seeks support and legitimacy from stakeholders for his or her new organization. To evaluate this argument, I conducted three experimental studies in the United Kingdom and the United States in which participants were asked to evaluate the profiles of two entrepreneurs and to make investment decisions for each. The studies manipulated the gender of the entrepreneur and the innovativeness of the new organization. The main finding is consistent across studies: gender status beliefs generally disadvantage women entrepreneurs during their search for support and, as a result, distort perceptions of the viability and investment-worthiness of an innovative idea. However, the salience of these patterns varies depending on the national cultural context, as well as the industry context, of the new organization in question. Findings indicate that gender status beliefs can be understood as an important mechanism contributing to the high degree of gender inequality in entrepreneurship rates at the aggregate-level and a key factor that influences the rise of new and novel organizations.

A growing body of scholarship indicates that the persistence of the gendered “glass ceiling” in organizations can be attributed not only to structural factors, such as gendered network positions (Burt 1998; Ibarra 1997) and male-centered job expectations (Acker 1990; Williams 2001), but also to cognitive biases at the level of social interaction. For instance, studies suggest that women managers are often believed to be less achievement-oriented (i.e. “agentic”), competent, and capable than their male counterparts; this can result in women being given fewer rewards for their successes, being taken less seriously as a source of ideas, and being held to a stricter standard of performance (Foschi 2008; Heilman 2001; Ridgeway 2001; 1997). Moreover, organizational efforts to mitigate such biases and their negative effects have often been unsuccessful and, in some cases, can even produce the opposite of their intended outcome (Castilla 2008; Castilla and Benard 2010; Kalev, Dobbin and Kelly 2006).

In light of these findings, it is not surprising that both scholars and women entrepreneurs alike often frame entrepreneurship as one strategy by which women can avoid the discrimination and/or unfriendly work environments found in established organizations (Carter and Cannon, 1992; Heilman and Chen 2003; Mattis 2004; Maniero and Sullivan, 2006; Moore and Buttner 1997). And indeed, when compared to managers, entrepreneurs have greater autonomy over their work environment and are not embedded in a preexisting set of organizational roles and relationships, each of which are attached to gender stereotypes about performance and behavior (Reskin and Roos 1990; Ridgeway 1997). Entrepreneurs also do not typically hold the same degree of direct supervisory authority that most managers do, a structural position that can provoke interpersonal dislike and derogation toward women (Rudman, Phelan, Nauts & Moss-Racusin, 2009).

But does entrepreneurship truly offer a refuge from the interactional gender biases that persist in the context of established organizations, or do they merely take on a different form? While the existing literature often assumes that cognitive biases are relatively absent from the entrepreneurial context, theory and research grounded in status characteristics theory indicates otherwise. Namely, it finds that widely shared cultural beliefs about gender, particularly those that prescribe different expectations of competence for women and men (i.e. gender status beliefs), can be expected to subtly, but systematically, frame social interactions across a wide variety of settings (Ridgeway 2009; Ridgeway and Correll 2004). Social interactions arguably play an even more critical role for entrepreneurs than they do for managers because an entrepreneur's motivation *and* the new organization's survival are ultimately contingent on his or her ability to gather encouragement, support, and (eventually) legitimacy from stakeholders.

For instance, in order to offset uncertainty about a new organization's likelihood of success, entrepreneurs must develop strong, trusting relationships with potential supporters (Aldrich and Ruef 2006; Lounsbury and Glynn 2001). This is especially the case for entrepreneurs who are introducing a brand new product or process. They can be expected to encounter greater resistance because their organizations not only suffer from a "liability of newness," but they may also challenge social norms, involve greater financial risk, and/or lack the legitimacy that a start-up in an established organizational population would have (Aldrich and Fiol 1994; Schumpeter [1934] 1961; 2000; Stinchcombe 1965; Suchman 1995; Swedberg 2000). If gender status beliefs inform the interactions through which entrepreneurs garner encouragement, support, and legitimacy for their ideas, then the socially selective process that determines which new and novel organizations will survive and which will fail operates differently depending on the gender of the individual proposing it.

Moreover, there is substantial gender inequality in entrepreneurship at the aggregate level, a pattern that obtains across industrialized countries (Arum and Müller 2004; Kelley, Bosma and Amorós 2010; Kim, Aldrich and Keister 2006). In fact, in the US in the mid 2000s, women were more highly represented among leaders within established organizational contexts than among entrepreneurs: women comprised 42 percent of managers, legislators, and senior officials (UNDP 2005), yet they were majority owners of only 30 percent of all private firms (Center for Women's Business Research 2004). Men are also disproportionately more likely than women to create innovative, growth oriented organizations (Kalleberg and Leicht 1991; Tonoyan and Strohmeier 2005), a point underscored by popular media attention to the dearth of women in Silicon Valley (Miller 2010).

Theoretical accounts of this inequality have largely focused on gender disparities in individual-level resources, such as network ties, financial means, and managerial experience (Kim, Aldrich and Keister 2006; Loscocco et al. 1991; Loscocco and Robinson 1991; Renzuli, Aldrich and Moody 2000; Ruef, Aldrich and Carter 2003). However, substantial gender gaps persist even after taking many such disparities into account (Arum and Müller 2004; Kim et al. 2006). Perhaps in part because they often look only at entrepreneurs that are already successful, existing studies of gender and entrepreneurship have failed to theorize or empirically address the possibility that cognitive gender biases in social interactions could, in the aggregate, contribute to this form of inequality.

To address these theoretical and empirical shortcomings, I propose and evaluate a social psychological theory of gender in the entrepreneurial process. Specifically, I argue that gender status beliefs generally discourage women from pursuing entrepreneurship and disadvantage them in their quest for financial and social support, and that as a result, these beliefs can

systematically distort the perceived viability and investment-worthiness of a particularly novel business idea. In the following sections, I first elaborate my arguments about the role of gender status beliefs in the creation of new organizations and generate a series of propositions about the effects of gender and innovativeness on the likelihood of gaining support for a new venture. I then consider how my propositions may vary when certain important scope conditions of my theory vary. In particular, I theorize how empirical predictions differ in situations where gender status beliefs differ in their relevance to the entrepreneurship setting (as in national contexts where gender inequalities at the macro-level differ), and where the industry and innovation in question is more strongly male-typed (as in high-tech entrepreneurship). I evaluate my claims with a series of laboratory experiments that I conducted in the United Kingdom and the United States, and then conclude with a discussion of the theoretical contributions of this research to the areas of gender, organization theory, and social psychology.

THE LEGITIMACY PROBLEM

To a certain degree, all new organizations lack legitimacy, or “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions”(Suchman 1995: 574). Though most new organizations overcome this problem by essentially reproducing existing organizational forms and routines, doing so is substantially more challenging for those that are introducing a novel product, process or organizational form (Aldrich and Fiol 1994; Suchman 1995). These organizations are, by definition, not taken-for-granted features of the organizational environment, and as such, are associated with higher uncertainty and higher risk in the eyes of potential stakeholders. Therefore, the entrepreneurs introducing them must work extra hard to craftily “sell” their ideas (Schumpeter [1934] 2000).

Scholars have argued that building trust is a critical first step in overcoming this hurdle (Aldrich and Fiol 1994; Aldrich and Ruef 2006). For example, entrepreneurs can strategically frame their ideas and/or deploy charismatic social skills during face-to-face interactions (Aldrich and Fiol 1994; Baron and Markman 2003; Lounsbury and Glynn 2001). They may also rely on their social networks to help build up their reliability via third parties (Kramer and Cook 2004; Podolny 1994). However, if we seriously consider institutional theorists' claim that cognitive frameworks and widely shared cultural beliefs permeate organizational environments (e.g. DiMaggio and Powell 1991), then cultural beliefs should have an effect on an entrepreneur's ability to build trust with and gain support from others that is *independent* of factors like framing or social capital. In the case of gender, I argue that one particular type of cultural beliefs can be expected to be primarily relevant: those which provide information about the quality of performance one might expect from men or women, or *gender status beliefs*. Under certain conditions, these status beliefs can become salient enough to influence the social interactions during which potential stakeholders, including colleagues, investors, family members, friends, customers, employees, and representatives of other organizations, ultimately determine whether an entrepreneur's (or a potential entrepreneur's) business idea is worthy of their support.

GENDER STATUS BELIEFS IN ENTREPRENEURSHIP

Both survey and experimental studies indicate that men are widely believed to be more competent and capable than women (Correll and Ridgeway 2003; Fiske et al. 2002; Wagner and Berger 1997; Williams and Best 1990). For instance, Fiske et al. (2002) found that, irrespective of their age, diverse groups of respondents across the United States consistently rated the category "men" higher than the category "women" on a multidimensional scale of competence. This sentiment is echoed in experimental research which suggests that gender operates as a cue

for general expectations of competence in task-oriented situations (Correll and Ridgeway 2003). This often occurs as an unconscious process. For example, gender status beliefs have been found to persist even when the actors involved consciously express gender-egalitarian beliefs and intentions (Rashotte and Webster 2005).

More specifically, gender can be understood as a *status characteristic*, which is a categorical distinction based on either a personal attribute (e.g. gender, race) or a role (e.g. manager) that has attached to it widely shared cultural beliefs about the status worthiness of one category over the other (Berger et al. 1977). When effectively salient, status characteristics can influence behaviors and evaluations because they inform performance expectations regarding an individual's level of ability (or competence) and/or effort (Correll, Benard and Paik 2007; Correll and Ridgeway 2003; Heider 1958). For instance, because they are expected to have more ability, high status actors are given more opportunities to participate in group tasks, have more influence over others, and have their performances evaluated more positively than low status actors. A status characteristic is made salient when it differentiates the actors involved, or when the characteristic is believed to be relevant to the task at hand. For example, it is in contexts where the task in question is particularly male-typed that gender status beliefs are especially likely to inform performance expectations (Ridgeway 2009; Ridgeway and Correll 2004).

Research widely confirms that entrepreneurship is one such male-typed task. In a study of business students in the US, India and Turkey, Gupta et al. (2009) demonstrated that respondents in all three contexts strongly associate entrepreneurship with stereotypically masculine characteristics. Buttner and Rosen (1988) similarly found that American loan officers rated women as significantly less like "successful" entrepreneurs on the dimensions of leadership, autonomy, risk-taking, readiness for change, endurance, lack of emotionalism and low need for

support when compared to equivalent men. This is consistent with the finding that characteristics stereotypically associated with entrepreneurship, including a willingness to take risks, competitiveness, aggressiveness, ambition, leadership ability and business sense, are perceived to be more typical among men than among women (Prentice and Carranza 2002). Moreover, these characteristics are intensely prescribed for men: despite being seen as desirable for both men and women, they are much more so for men (Prentice and Carranza 2002). Therefore, when men become entrepreneurs, they fulfill stereotypes not only about how they are, but also about how they *should* be.

Furthermore, unlike conventional management contexts, the situation of nascent entrepreneurship is inherently fraught with a high degree of uncertainty because there is no information about the past performance of the entrepreneur or the business to draw upon. Research has shown that stereotyping effects become especially strong in situations where there is little other information available (Wagner and Berger 1997).¹

Taken together, this suggests that gender will be salient as a status characteristic in the context of entrepreneurship. That is:

H1: Women entrepreneurs' ideas will be rated as less profitable and worthy of investment, and they will receive lower ability ratings than their male counterparts, all else being equal.

If it is the case that gender is indeed a salient status characteristic in the setting (that is, evaluators offer less investment to women *because* they rate women entrepreneurs to be less

¹ Ridgeway (1997) also argues that gender status beliefs are sufficient to create gender hierarchies in arenas where the organizational structures that typically reinforce gender inequality in employment, such as internal labor markets and job evaluation systems, are absent. In this sense, one would expect that cognitive bias may play an even a larger role in an investment market for start-ups than it does in the traditional labor market, where past job histories provide better information about future job performance.

competent entrepreneurs than men), competence ratings should mediate the gender differences in the business evaluation variables.

GENDER STATUS BELIEFS AND INNOVATION

Next, a key, and arguably distinctive, dimension of the entrepreneurship context is the issue of whether an entrepreneur is introducing a novel organization versus a conventional one. In order to disentangle the question of how gender status beliefs might influence the relationship between organizational innovation and the likelihood of acquiring support, it is necessary to consider both 1) how the activity of innovation itself may or may not be related to performance expectations (that is, expectations about an entrepreneur's ability and/or effort), and 2) how these expectations are consistent or inconsistent with gender status beliefs.

First, an *innovative* entrepreneur (as opposed to a *non-innovative* entrepreneur) occupies unclear territory regarding ability expectations. On one hand, theory suggests that evaluators may believe innovative entrepreneurs are fools: with no external evidence, such as a successful pre-existing business model, how is anyone to know if it will work out? (Aldrich and Fiol 1994). In this formulation, the inherent risk associated with innovation is also associated with a lack of competence on the part of the individual entrepreneur. This suggests that evaluators may hold lower ability expectations for innovative entrepreneurs as compared to their relatively "sensible" non-innovative counterparts. On the other hand, it is possible that an innovative entrepreneur may be perceived as *more* competent than a non-innovative counterpart because he or she is demonstrating the cognitive capacity to come up with a brand new idea.

In either case however, there is reason to suspect that innovative entrepreneurs may be perceived as exerting a higher degree of effort: whether or not the act of innovation is associated with foolishness or competence, an innovative entrepreneur may signal an unusual level of

aggressiveness or commitment to his or her enterprise simply because he or she is willing to challenge the normative way of doing things. By doing so, an innovative entrepreneur makes especially salient the agentic, masculine stereotypes that are already associated with entrepreneurship, such as ambition and a willingness to take risks.

Because these traits are believed to be less typical (though still desirable) among women than among men (Prentice and Carranza 2002), innovative *women* entrepreneurs signal qualities that are inconsistent with the lower baseline ability expectations that gender status beliefs prescribe for women entrepreneurs in general. As such, an innovative woman entrepreneur may stand out as particularly unique compared to other women entrepreneurs. Biernat and Kobrynowicz (1997) find that, like a “flower blooming in winter” (544), stereotype inconsistent targets may be rated unusually highly when subjective rating scales are used (e.g. “Wow, she's really competent compared to most women.”).² For instance, when applying for a managerial position, highly credentialed and educated women (unexpected targets) were rated more highly than men (expected targets) with the same qualifications. This suggests that women entrepreneurs may receive relatively higher ratings when proposing an innovative instead of a non-innovative idea. In contrast, we should expect less evidence of this “wow” effect for men, because both innovative and non-innovative men entrepreneurs, to a certain extent, live up to expectations both about how they are and how they should be.

Secondly, a central principle of status characteristics theory maintains that information that is inconsistent with other status-related information will be accorded more weight than it would have if it were the only piece of status information present (Berger et al. 1977; Correll and

²Research has shown that under circumstances where women are threatening the status order, such as when they seek positions of authority over others, these traits can be viewed as undesirable for women and elicit a backlash effect (Rudman and Glick 2001; Rudman, et al. 2009). However, because early-stage entrepreneurship does not involve a threat to the status order in this way, I do not expect to find a backlash effect. My results also do not support this (not shown, but available upon request).

Ridgeway 2003). For instance, if a person is evaluating someone who is an African American woman, the fact that she is also a Harvard-trained lawyer will carry more weight than it would in the absence of status information about her ethnicity and gender. If innovation is at all associated with greater ability or effort (status indicators), then this piece of information may be accorded more weight for women (the status category for which information is inconsistent) than for men (the status category for which information is consistent).

Together, these theories lead to the expectation that:

H2: Innovation will be more positively associated with profitability, investment and ability ratings for women entrepreneurs than for men entrepreneurs, all else being equal.

Furthermore, if it is indeed the case that innovation has a differential impact on ratings of men's and women's businesses *because* gender is salient as a status characteristic in the setting, then ability ratings should mediate these effects.

CONTEXTUAL FACTORS

As discussed, one important scope condition of status characteristics theory maintains that gender will be relatively more salient as a status characteristic in an entrepreneurial setting when the activity of entrepreneurship is itself strongly male-typed. It is plausible however that the extent to which this scope condition holds may vary considerably according to two key contextual factors: 1) the degree to which individuals in a given society associate entrepreneurship (and business leadership roles in general) with men and 2) the degree to which individuals associate the industry of a given start-up with men.

Societal Context

Operationally, the first factor can be informed by variation on societal-level variables pertaining to gender equality at the macro-level. These include women's overall representation in entrepreneurial and managerial roles, as well as dominant cultural attitudes about women's

employment in general. In particular, the activity of entrepreneurship can be expected to be less strongly male-typed in a societal context that has higher levels of gender equality and more progressive gender attitudes at the macro-level. Because entrepreneurship is less male-typed in such a context, gender should be relatively less salient as a status characteristic for entrepreneurs. This means that the baseline status assumptions about women's abilities in entrepreneurship should be relatively weaker, and as a result, the stereotype inconsistency between these baseline assumptions and innovative entrepreneurship should be less prominent. In short,

H3: There will be weaker evidence for Hypotheses 1 and 2 in a setting with less macro-level gender inequality than in a setting with more macro-level gender inequality.

Furthermore, if it is the case that cross-context differences in the effects of gender on business evaluations arise *because* gender is a stronger status indicator in one context than another, then competence ratings should mediate the differences in the effect sizes between the two contexts.

In order to gain variance on these societal-level attributes, I employ comparative case method logic to develop a UK\US cultural comparison. The US offers a theoretically robust comparison to the UK because it allows me to "hold constant" some basic attributes of economic systems that crucially influence entrepreneurship, while providing variance on gendered patterns of work and cultural beliefs.

The UK and US are similar to one another in their levels of economic development, reliance on a "liberal" welfare capitalist model, and shared Anglo Saxon cultural history (Esping-Anderson 1990; see also O'Connor et al. 1999; Soskice 2005). They also consistently rank high on the World Bank's *Ease of Doing Business* indicators, an index of laws relevant to business start-up and ownership (World Bank 2010). For example, start-up costs are low, hiring and firing workers is relatively easy, and there are relatively few bureaucratic procedures involved. Thus, it

is not surprising that rates of early-stage entrepreneurial activity are fairly similar between the two countries (Kelley et al. 2010).

However, gender equality in the labor market and gender attitudes vary between the two settings. Historically, women workers in the US have had a higher social status than those in the UK, in part because Equal Opportunity lawsuits have been more frequent and more widely publicized in the US (Dex and Shaw 1986). Currently, women in the US are much more likely to work full-time than women in the UK (Crompton 2006; O'Connor et al. 1999), and are more likely to be in professional and managerial positions (Mandel and Semyonov 2006; UNDP 2008). For instance, only 18 percent of women in the labor force in the UK are professionals, compared to 26 percent in the US (Pettit and Hook 2009). Differences in cultural attitudes about women's employment are consistent with these patterns: people are more supportive of married women's full-time employment, especially mothers' full-time employment, in the US than in the UK (Alwin, Braun, and Scott 1992; Scott and Duncombe 1991; Treas and Widmer 2000). Importantly for this project, women are also significantly more likely to be entrepreneurs in the US than in the UK (Baughn et al. 2006; Kelley et al. 2010).

In sum, because women's labor market position is generally higher in the US, *and* the activity of entrepreneurship itself is less male-dominated, gender should be relatively less salient as a status characteristic for entrepreneurs in a US setting than in a UK setting.³

Industry

A second key contextual factor that may affect the salience of gender as a status characteristic in entrepreneurship is the gender composition of the new organization's industry

³Because these data are not generalizable to the populations of the US and the UK, I cannot (and do not attempt to) evaluate the degree to which any differences in bias I detect might account for differences in actual gender gaps in entrepreneurship in these countries. Instead, the goal of the research is to provide insight into why I may find different levels of support for the theoretical mechanism of status-based gender bias in each context.

within a given society. Sex segregation by both industry and occupation are widespread (Charles and Grusky 2004; Weeden and Sorensen 2004). As a result, the education, skills, and activities characteristic of a particular industry or occupation are often associated with one gender or the other, with those associated with women being disproportionately less lucrative and status-worthy. These patterns carry over into entrepreneurship as women entrepreneurs are more likely to be concentrated in low profitability, female-dominated industries such as retail, food service, and interpersonal care (Brush 1992; Cater and Cannon 1992; Loscocco et al. 1991; Loscocco and Robinson 1991). This suggests that the task of entrepreneurship itself can be expected to be more strongly male-typed in a male-dominated industry than in a gender-neutral one. As a result, gender status beliefs should be relatively more salient for entrepreneurs in this setting.

Gender segregation has also been proposed as one of the reasons why women are less likely to be involved in product and process innovations (Tonoyan and Strohmeier 2005): innovation is more likely to occur in male-dominated industries in large part because it is these industries which draw on (also male-typed) knowledge and skills which facilitate technological innovation, such as math, science, and engineering. Moreover, innovation in male-dominated industries (and in high-tech industries in particular) may be viewed as requiring greater competence than in non-high-tech industries because it requires these socially valued skills. If this is the case, then innovative women entrepreneurs in a high-tech industry are more status inconsistent than those in a gender neutral industry: baseline expectations for women's entrepreneurial abilities in male-dominated industries are lower than in gender-neutral areas, but this is powerfully inconsistent with the presumption that innovation in male-dominated areas requires high levels of competence.

Therefore, I propose that:

H4: There will be stronger evidence for Hypotheses 1 and 2 when the industry question is male-dominated and requires male-typed technological skills than when the industry in question is gender-neutral.

Moreover, if it is the case that gender is more salient as a status characteristic in a male-dominated industry, then competence ratings should mediate industry differences in the effects of gender and innovation on business quality ratings.

STUDY 1: GENDER STATUS BELIEFS AND INNOVATION

In order to evaluate my hypotheses, I conducted three experimental studies. Study 1 evaluates my hypotheses about the biasing effects of gender status beliefs (H1 and H2) in a UK setting. Study 2 evaluates these same effects in a US setting, thus generating a cross-cultural comparison to Study 1 (H3). Finally, Study 3 evaluates these effects in a high-tech industry setting in the US, which provides an industry comparison to Study 2 (H4).

Method

All three experimental studies were conducted at large research universities, each of which is ranked in the top tier of universities for its country. The advantage of an experimental approach is that it provides a highly controlled setting in which I can obtain a diverse set of outcome measures. This method allows me to systematically evaluate cognitive gender biases in entrepreneurship because factors that might otherwise interfere with hypotheses testing are absorbed through randomization.

I rely on a sample of university students to evaluate my theoretical claims. Study 1 includes forty-five participants (27 men and 18 women). Across all three studies, gender of participant did not significantly affect results; therefore, I do not discuss it further.⁴ The average

⁴ In supplementary analyses (not shown), I included the gender of the respondent in the models, as well as tested the two-way interaction of participant gender and entrepreneur gender and the three way interaction of participant gender, entrepreneur gender, and innovativeness in each of the models. Consistent with status characteristics theory,

age of participants was twenty (with a standard deviation of 2.4 years). Participants also represented a wide range of majors, including arts and sciences, business, engineering and interdisciplinary majors. These participants provide an appropriate test of my theoretical propositions for a number of reasons. First, my theory is that cultural beliefs that are *widely shared* in a given culture influence the interactions through which an entrepreneur (or a potential entrepreneur) gains support for an idea. Thus, I am interested in cultural influences not only on the degree of support that formal investors may offer new ventures, but also in the support that people *in general* are likely to give them. Secondly, university students themselves voice (and realize) entrepreneurial ambitions. Therefore, the participants, in their role as friends and family members of potential entrepreneurs, are a population with a direct connection to the subject matter. Finally, research comparing university students' ratings of workers to those of actual managers have found them to be quite similar (Cleveland and Berman 1987; Olian and Schwab 1988; Correll, Benard, and Paik 2007). It should also be noted that this sample offers a conservative test of my theoretical propositions about gender bias because younger, university educated people typically hold more progressive gender ideologies (this is the case in both the UK and the US settings) (Bolzendahl and Meyers 2004; Knudsen and Waerness 2001). One potential limitation of relying on undergraduate participants however may be that they are less knowledgeable about business investment and may therefore be relatively more uncertain about the quality of the business proposals than real investors would be.

Design

Participants rated a pair of fictitious entrepreneurs, presented as real, of the same gender, same level of qualifications (i.e., the same age, education, occupation and managerial

which suggests that men and women are equally likely to rely on gender status beliefs, there were no significant effects of gender of respondent on the gender of entrepreneur effects.

experience), and whose business ideas were in the same low-tech and gender-neutral industry. The study employed a 2x2 mixed factorial design that manipulated 1) the innovativeness of a business plan (innovative or non-innovative, within subjects) and 2) the gender of the entrepreneur (male or female, between subjects). Therefore, each participant was asked to read about and evaluate one non-innovative entrepreneur and one innovative entrepreneur who were both either men or women. Male and female participants were randomly assigned to one of these two conditions.

This design generates a valuable test of my hypotheses for a number of reasons. First, the purpose of this project is to assess gender differences in the effect of innovativeness on evaluations of entrepreneurs. Therefore, it is important that innovativeness be measured as a within-subjects comparison as it is more efficient than between-pair comparisons (Cohen 1988). Second, estimating gender effects between subjects minimizes suspicion about the study's hypotheses and produces unbiased comparisons of ratings of the exact same business plans across gender (Correll, Benard and Paik 2007). Third, by asking participants to evaluate business plans in a gender-neutral industry, I avoid conflating the effects of gender stereotypes regarding the activity of entrepreneurship with those regarding male-dominated occupations or industries.

Procedure

Participants came into the lab individually and read descriptions of two entrepreneurs and their business ideas. These ideas differed on innovativeness, but were otherwise similar. The participants examined each description one at a time; I counterbalanced which business description, innovative or non-innovative, they viewed first. After reading about each entrepreneur, participants immediately completed a survey with a range of evaluation measures about the entrepreneur and the business idea (see "dependent measures"). Then participants were

asked to allocate investment points to each business and to write a short paragraph explaining their reasoning behind their decision. Before leaving the lab, participants were briefly interviewed to assess whether the experimental manipulation was successful and to determine if they had any suspicions about some aspect of the study. Then they were debriefed and paid.

Cover Story

Participants were told that the researchers were interested in how university students evaluate new business plans and make decisions about investing in them because university students are increasingly starting new businesses of their own. They were informed that the paragraphs they were about to read were summaries of submissions to a small business investment competition for young entrepreneurs that occurred in March of 2004. In order to encourage participants to put themselves in the role of what others would do, they were told that the researchers have data about each of these businesses' rates of profit and loss in the time since they opened, and that they have allocated each participant 100 points (equivalent to 100 GBP) to invest in each company as one sees fit. Therefore, each participant was told they could potentially earn a maximum of £5 in returns above the £5 participation payment already promised, depending on their investment accuracy. I emphasized that the quality of their investment decisions would be compared to existing performance data and that they would have to justify why they chose to invest the money the way they did. By doing so, I held participants accountable for their investment decisions.

The Descriptions

Each participant read two descriptions of entrepreneurs. The descriptions were identical across condition, except for varying first names to manipulate gender (see below). Both entrepreneurs proposed to start a small business in "the wine industry," described as an upper

middle class, gender-neutral industry. This information was conveyed to the participants with the statement, “Approximately 90% of owners in the industry hold at least a bachelor’s degree and about 50% are women.” Both entrepreneurs were described as holding B.A. degrees in Business Management from large, upper tier universities in the UK (though a different university than where the study was conducted), were the same age, had five years of management experience in the same industry as the start-up, and had a credit rating that met the minimum requirements for a business start-up loan from a major UK bank. They were also both self-described as confident and goal-oriented.

Gender Manipulation.—The gender of the entrepreneur was manipulated by altering the first names of the entrepreneurs. The following names were used: Laura and Julie (women), and David and Jason (men).

Innovation Manipulation.—The innovation manipulation was designed to capture the theoretical dichotomy between a business model that replicates existing organizations versus a brand new one. The non-innovative business summary described a typical small wine store with a “common business plan” that has been “shown to work in the past”. The innovative business summary described a new business plan that has been recognized as “especially innovative”. The business described is a small store that provides customers the ingredients, tools, and guidance to make and bottle their own wine.⁵ I tested the effectiveness of this manipulation by pre-testing the descriptions. The pretests did not provide names of the entrepreneurs in order to ascertain the perceived innovativeness of the ideas independent of gender. These tests established that the “innovative” description was indeed perceived as such. Two separate manipulation checks during the study also confirmed that respondents indeed rated the “innovative” business

⁵ The “innovative” business idea is based on an actual small business in Southern California that has won awards for innovative business practices from its local chamber of commerce.

summary to be significantly more innovative than the “non-innovative” summary ($p < 0.001$ for both measures). One participant was eliminated due to a failed manipulation check. Rejection rules were conservative and established beforehand.

In this study, I manipulate innovation as creativity in the business model (rather than a technological innovation, for instance) for two reasons. First, the purpose of the manipulation is to capture the theoretical dichotomy between entrepreneurship as repetition versus the creation of something new. Second, the goal of the study is to discern how being an innovative instead of repetitive entrepreneur generates different advantages or disadvantages in ratings of men and women. This requires that I maintain a gender-neutral task frame. By separating innovation from technological know-how, I can be confident that findings about innovation are not confounded by the strongly male-typed task of *technological* innovation (see Study 3).

Dependent Measures

After reading the descriptions of the entrepreneurs and their businesses, participants rated them on a series of measures. First, they evaluated the general quality and viability of each business idea. Specifically, they were asked to rate how profitable they thought the enterprise would be. They were then asked, “If you had some of your own money available to invest in a new business, how likely do you think it is that you would invest it in [entrepreneur’s] business?” These items were both measured on a scale ranging from 1 (“not at all”) to 5 (“extremely”).

Second, participants rated each entrepreneur on three items related to their entrepreneurial ability. These included how competent they thought the person was, how capable they were of turning the business idea into a successful venture in the long-term, and how skilled

they were as an entrepreneur.⁶ Next, they rated the entrepreneurs' degree of effort on two dimensions: how aggressive they thought the entrepreneur was and his or her level of commitment to the venture. Each item was measured on a scale, ranging from 1 ("not at all") to 5 ("extremely").

Finally, after reading and rating both business summaries, participants were asked to directly compare the competence of the entrepreneurs to one another. Answers ranged on a seven point scale, with an answer of 1 indicating that the entrepreneur was much less competent than the other, and 7 indicating that he or she was much more competent. The participants then divided the 100 investment points between the two businesses and wrote a brief paragraph explaining their rationale behind their decision. This additional measure of investment is important because it provides an indicator of *relative* support for an innovative versus non-innovative business plan, as well as a behavioral measure of investment decision-making (since each participant was told that their payment was dependent upon the accuracy of their decision).

Results

Table 1 shows means by condition for Study 1. First, male entrepreneurs are significantly penalized for innovation on all three business evaluation measures. Innovators are not only viewed as less profitable ($p < 0.001$), but they are also deemed significantly less worthy of investment by both the rating and point allocation measures ($p < 0.01$, $p < 0.001$, respectively). This supports the theoretical tradition which assumes that there is considerable resistance in the social environment to new organizations. Innovators are also perceived to be foolhardy: despite

⁶ Some researchers collapse ratings related to competence into one index (e.g. Correll, Benard, and Paik 2007). Though these measures produce similar patterns of results, creating an index was not feasible because principal factor analysis revealed that the variables did not meaningfully hold together in the same way across the three studies. Therefore, in order to preserve cross-study comparability, I analyze each measure separately.

being more aggressive ($p < 0.05$), innovative male entrepreneurs are rated significantly less competent ($p < 0.001$) and capable ($p < 0.001$) than their non-innovative counterparts.

In contrast, these patterns do not hold in the female condition. Innovative women entrepreneurs do not experience profitability or investment penalties. Instead of being perceived as foolhardy, they are actually believed to be more competent ($p < 0.05$; relative measure: $p < 0.001$) and more aggressive ($p < 0.05$) than their non-innovative counterparts. This lends preliminary support to the idea that innovation is more strongly associated with ability for lower status individuals than for higher status individuals (e.g. a “wow” effect among stereotype inconsistent targets). It should be noted however that on the dimension of effort, individuals presenting innovative ideas are rated higher, regardless of gender: innovative entrepreneurs are believed to be significantly more aggressive ($p < .05$) than their non-innovative counterparts.

In order to fully evaluate my hypotheses about the biasing effects of gender status beliefs on perceptions of innovation, I turn to regression models that estimate the effects of gender of entrepreneur, innovativeness, and the interaction of gender of entrepreneur with innovativeness on each dependent measure. I use random intercepts regression models to take into account the nonindependence of observations that results from asking participants to evaluate entrepreneurs in pairs. Specifically, the model accounts for variability between participants by estimating a mean for each participant, instead of imposing the same grand mean across all observations. Recent research suggests that, even with a small sample, random effects standard errors are more efficient and less biased than standard OLS regression with robust standard errors clustered by participant ID (Wooldridge 2003). However, analyses using the clustered OLS strategy produced very similar standard errors to the ones I present here.

The estimated regression coefficients are presented in Table 2. For most of the models, the gender coefficient and the interaction between gender and innovativeness are in the opposite direction. Overall, the effects indicate that women are far less likely than men to experience a profitability or investment penalty for being innovative, but that this is largely because participants assign particularly low baseline ratings to women entrepreneurs.

For instance, in support of Hypothesis 1, the effects for Woman Entrepreneur indicate that non-innovative women entrepreneurs' businesses are deemed significantly less profitable ($\beta=-0.45, p<.05$) and less deserving of investment ($\beta=-0.68, p<.01$; investment points: $\beta=-18.96, p<.01$) than their non-innovative male counterparts. Moreover, they are rated significantly less capable ($\beta=-0.50, p<.05$) and competent than their male counterparts by both measures ($\beta=-0.69, p<.001$; relative measure: $\beta=-1.01, p<.01$).

However, the effect of an innovative business plan on these ratings also differs considerably by gender of entrepreneur. Whereas men entrepreneurs receive significantly lower profitability, investment, competence and capability ratings than their non-innovative male counterparts, the significant and positive innovative*woman interaction for these measures indicates that innovative women entrepreneurs do not experience such penalties (Hypothesis 2). This brings about a pattern whereby the baseline gender bias detected against women entrepreneurs is mitigated when women are (unexpectedly) innovative.

A content analysis of written rationales for investment decisions lends further support to the idea that participants genuinely perceived the relative quality of the innovative and non-innovative business proposals differently when they were presented by men versus women. For example, respondents in the male condition, when compared to those in the female condition, more often indicated that the non-innovative idea was a "safe" alternative and more often cited a

small, niche market as a problem with the innovative business plan. Perhaps because the alternative was not deemed to be terribly “safe,” the innovative plan in the female condition seemed relatively more viable: compared to the male condition, participants in the female condition more often explained that the innovative plan was potentially lucrative (50% versus 14%) and that it would be successful or competitive in the long run (33% versus 14%). They also argued less often than participants in the male condition that the innovative plan was too complicated to successfully pull off (12% versus 24%), or that the innovative idea involves barriers to start up, such high costs and an advantageous physical location (8% versus 24%).

Mediation Analysis

At this stage, my results suggest that participants tend to have lower baseline ratings for women’s profitability, investment worthiness and ability in non-innovative (i.e. typical) entrepreneurship, but that innovation is more positively associated with profitability, investment and ability measures for women entrepreneurs than for men entrepreneurs. In order to complete my argument that gender status beliefs play a key role in explaining these patterns, I need to give evidence that these discrepancies arise *because* gender differentially informs the performance expectations that people hold for a given entrepreneur. For instance, according to status characteristics theory, people have lower expectations for women’s competence at the male-typed task of entrepreneurship. It is these lower expectations that lead them to be less likely to support women’s non-innovative businesses than men’s non-innovative businesses, and also to rate women more positively when innovative ideas are considered. If the theory is correct, then evaluations of competence should mediate these gender effects. To evaluate this argument, I add the competence measure as an independent variable to the models predicting business

evaluations in Table 3. Because the investment point measure reflects the *relative* amount invested in each business plan, I use the relative competence measure to mediate this variable.

Not surprisingly, higher competence ratings lead to significantly higher ratings of profitability and investment worthiness. More importantly however, including ratings of competence in the models substantially reduces (and in most cases eliminates) the significant gender effects found in the ratings of profitability, investment worthiness, and investment points. Specifically, the magnitude of the effect for woman entrepreneur was reduced by 60 percent for profitability, 35 percent for investment likelihood, and 48 percent for investment points. The magnitude of the interaction effect between gender and innovativeness was also reduced by 39 percent for profitability, 69 percent for investment likelihood, and 48 percent for investment points. These models suggest that in this study, participants rated women's businesses differently from men's largely because women entrepreneurs were believed to be less competent than men entrepreneurs (i.e. because gender was salient as a status characteristic in this setting).

Discussion

This study offered a robust test of my first two hypotheses and revealed substantial support for my theory: in a setting where gender can be expected to be quite salient as a status characteristic in the area of entrepreneurship, the interactions through which entrepreneurs seek encouragement and support for a business idea are likely influenced by gender status beliefs. Because they disadvantage non-innovative women entrepreneurs and distort the perceived viability of an innovative idea, gender status beliefs play a role in determining which entrepreneurs (and which new ideas) are selected into the population of surviving organizations. These results also support the theoretical premise that innovative women entrepreneurs may stand out as particularly unique because they exhibit stereotype inconsistent information. That is,

women are rewarded more than men for being (unexpectedly) innovative, and in doing so, end up partially compensating for the status-based biases that they might otherwise experience.

Though these findings tend to align with my theoretical predictions, it is not yet clear whether these patterns would hold in a setting where the scope condition that the task of entrepreneurship must be male-typed is relatively less valid. Addressing this issue is the objective of the next study.

STUDY 2: CROSS-CULTURAL COMPARISON

I designed Study 2 in order to test my hypothesis that the salience of gender status beliefs in the area of entrepreneurship may vary by cultural context because the activity of entrepreneurship may be more male-typed in one context than in another (H3). The procedures were identical to that of Study 1, but were conducted at a university in the United States. Accordingly, compensation was \$5 and investment points were equivalent to \$100. Moreover, the vignettes described entrepreneurs who were graduates from a large, upper tier university in the US (though a different university than where the study was conducted), and who had a credit rating that met the minimum requirements for a business start-up loan from a major US bank.

The study includes sixty participants altogether (30 men and 30 women). Similar to Study 1, the average age of participants was twenty (with a standard deviation of 1.4 years). Participants again represented a wide range of majors, including arts and sciences, business, engineering and interdisciplinary majors. Pretests and manipulation checks during the study confirmed that respondents rated the “innovative” business summary to be significantly more innovative than the “non-innovative” summary ($p < 0.001$ for two measures). One participant was eliminated due to a failed manipulation check and one participant was eliminated due to failure to complete the study.

Results

Table 1 compares means by condition for all dependent measures. Similar to Study 1, innovative men entrepreneurs are rated significantly less profitable than their non-innovative counterparts ($p < .05$), though in this setting, participants do not also rate innovative business plans to be significantly less worthy of investment. Also similar to Study 1, neither profitability nor investment is significantly related to the innovativeness of the plan in the female condition.

Next, the association between innovation and ability differed by gender of entrepreneur. Whereas men entrepreneurs are rated similarly on all three ability measures regardless of the plan they propose, women entrepreneurs receive significantly higher competence ($p < .05$) and skill ($p < .01$) ratings when they propose an innovative instead of a non-innovative business plan. However, both men and women innovative entrepreneurs are rated to be *relatively* more competent than their non-innovative counterparts ($p < .05$). Additionally, innovation is strongly associated effort, regardless of gender: innovative entrepreneurs are believed to be significantly more aggressive ($p < .001$) and more committed ($p < .001$) than their non-innovative counterparts.

Table 2 presents random intercepts regression estimates for Study 2 and includes significance tests for differences between coefficients for Study 1 and Study 2. These were obtained through a pooled model that included a US dummy variable, as well as the two-way and three-way interactions between the US study, innovativeness and gender of entrepreneur (pooled models are not shown but available upon request).

Consistent with Hypothesis 3, although the gender effects in Study 2 follow the same pattern as those in Study 1, many of them are significantly smaller in magnitude than in Study 1. For example, similar to the competence and capability ratings in Study 1, non-innovative women entrepreneurs were perceived to be significantly less skilled than their male counterparts ($\beta =$

0.32, $p < .05$), but this bias disappears when women present an innovative idea ($\beta = 0.36$, $p < .05$). Also similar to Study 1, the modestly significant interaction effect between Innovative and Woman Entrepreneur indicates that the allocation of investment points is reversed for men and women: whereas innovative men received relatively fewer investment points than their non-innovative counterparts, innovative women received more ($\beta = 14.33$, $p < .10$). In fact, innovative women entrepreneurs receive approximately the same amount of investment points as non-innovative men entrepreneurs. However, unlike Study 1, profitability, investment likelihood, competence and capability ratings did not differ significantly by gender.

It should also be noted that in the US context, respondents held higher performance expectations for innovative entrepreneurs in general. For instance, even though both men and women entrepreneurs are viewed to be significantly less profitable when they are innovative ($\beta = -0.36$, $p < .05$), they are believed to be more competent ($\beta = 0.25$, $p < .05$; relative measure: $\beta = 1.07$, $p < .01$), aggressive ($\beta = 1.39$, $p < .001$) and committed ($\beta = 0.52$, $p < .001$) than their non-innovative counterparts. As such, innovation does not appear to be foolish for either men or women, at least in this setting. These effects are significantly different from the UK setting: innovation is associated with greater profitability, investment, competence *and* capability ratings in Study 2 than in Study 1.

A content analysis of participants' written justifications for their investment decisions further suggests that the gender of the entrepreneur did have an influence (albeit relatively modest) on participants' perceptions of the business ideas. Similar to Study 1, participants were relatively more skeptical of the conventional business model and less skeptical of the innovative model in the female condition. For instance, only about half of the respondents in the female condition reasoned that the non-innovative plan would be a "safe" bet, whereas about seventy

percent in the male condition did. Moreover, when compared to the male condition, respondents more often believed that the innovative plan would be competitive and/or successful in the long term, and less often cited potential problems with the idea (such as having a small market).

Mediation Analysis of Study Differences

As Table 5 indicates, the interaction effect between gender and innovativeness on all three business quality outcomes was significantly larger and more positive in Study 1 than in Study 2. My theory suggests that this discrepancy arises because 1) gender can be expected to be less salient as a status characteristic in the US setting than in the UK setting, and that as a result, 2) the stereotype inconsistency for innovative women entrepreneurs is less apparent in a US setting. If this is indeed the case, then evaluations of competence should mediate the significant differences in effect sizes between the two studies.

A mediation analysis largely supports this contention. When competence measures are included the pooled models predicting business quality ratings, the cross-study differences in the interaction effects between gender and innovativeness are no longer statistically significant in any of the models (not shown but available upon request). Specifically, the US/UK difference in the effect size was reduced by 40 percent, 33 percent, and 95 percent for profitability, investment likelihood and investment points, respectively. The analysis also indicates that participants are more likely to support innovative ideas in the US than in the UK because innovation is associated with higher competence in the US. For instance, when competence is included in the pooled model, there are no longer significant differences between Study 1 and Study 2 for the effect of innovative entrepreneur on profitability or investment likelihood, and this difference is also dramatically reduced for investment points ($p < .05$). In particular, these effects were reduced by 49 percent, 39 percent, and 40 percent, respectively.

Discussion

Study 2 offered a more conservative test of my hypotheses than Study 1 because gender could be expected to be less salient as a status characteristic in the area of entrepreneurship in a US context, and indeed, results showed only modest support for Hypotheses 1 and 2.

Participants held lower baseline expectations for women's skills (but not competence or capability) in the area of entrepreneurship (Hypothesis 1), and women entrepreneurs appeared unusually skilled when they presented an innovative idea (Hypothesis 2). Moreover, resistance to investing in innovative ideas was moderately weaker for women entrepreneurs than men entrepreneurs (Hypothesis 2).

The significantly weaker evidence of status-based gender bias in the US setting versus the UK setting underscores the idea that the relevance of gender status beliefs at the micro-level may be at least partly conditional upon patterns of inequality at the macro-level. However, it is important to highlight the finding that bias in entrepreneurial ability was detected with the skill measure in the US study, but the competence and capability measures in the UK setting. Though this discrepancy was unexpected, it is possible that "competence" and "capability" were interpreted as general indicators of one's ability to be an entrepreneur, whereas "skill" implied a level of specific know-how that has been learned in order for one to be an entrepreneur. If so, UK respondents may be more likely to view women as generally less able to be entrepreneurs, whereas US respondents may be more likely to view women as merely less technically prepared for entrepreneurship. This interpretation is consistent with the finding that in the UK setting, participants produced substantially biased ratings of competence and capability as well as profitability and investment, whereas participants in the US setting produced biased evaluations of women's skills, but far less biased ratings on business quality outcomes.

In the US setting, participants also tended to associate innovation with greater ability and effort than in the UK. More interestingly, it is these higher performance expectations associated with innovation that mitigate the negative effects that innovators might otherwise experience, such as greater resistance toward investing in new ideas. This higher social status associated with innovative entrepreneurs in the US may not be surprising in light of the fact that American culture is often characterized by a uniquely strong tradition of entrepreneurship and innovation (Schumpeter [1934] 1961; Shane 1993; Weber [1904] 1930).

One important limitation of these two studies is that the findings could be an artifact of the particular vignettes used. For example, findings could have been influenced by unobserved cultural (and possibly gendered) associations that respondents made with the wine industry, over and above the gender-neutral information that was provided to them. Moreover, the status beliefs pertaining to innovation and the gender of the entrepreneur are likely to vary depending on the industry in question. Study 3 addresses these unresolved issues.

STUDY 3: INDUSTRY EFFECTS

Study 3 was designed to test Hypothesis 4 about whether the above patterns of findings differs when the industry of the businesses being considered is male-dominated (instead of gender-neutral) and where innovation represents a male-typed technological advancement (rather than mere creativity). Accordingly, the design for Study 3 was identical to Studies 1 and 2, but the business descriptions were both in the energy industry and headed by individuals with B.A. degrees in environmental engineering. The non-innovative entrepreneur plans to start a typical energy consulting firm in which “engineers and technicians would consult with various clients to increase the energy efficiency of their homes and businesses.” Like the non-innovative plan described in Studies 1 and 2, this plan is described as a “common business plan,” which “has

been shown to work in the past.” The innovative entrepreneur, by contrast, has designed a new geothermal energy system that is far more efficient and cost effective than current ones. The entrepreneur is in the process of patenting the design, which s/he plans to market for home and business use.⁷ Extensive pretests and manipulation checks ensured that the respondents believed the innovative vignette to be significantly more innovative than the non-innovative vignette.

This study was conducted at the same university in the US as Study 1 and included seventy-three participants (29 male, 44 female). Dependent measures were identical to the other studies. Five participants were suspicious about some aspect of the study and/or failed the standard manipulation checks and were thus excluded from the analysis. Alternate analyses including these participants produced qualitatively identical results. The manipulation checks confirmed that respondents rated the “innovative” business summary to be significantly more innovative than the “non-innovative” summary ($p < .001$ for both manipulation checks).

Results

Table 6 compares means by condition for Study 3. In contrast to the previous two studies, innovative male entrepreneurs do not experience any penalties in profitability or investment worthiness when compared to their non-innovative male counterparts. Similar to Study 2 however, they are perceived to be more aggressive ($p < .001$), committed ($p < .01$) and relatively more competent ($p < .05$) than their non-innovative counterparts. Innovative women entrepreneurs also receive higher competence ($p < .001$), aggressiveness ($p < .001$) and commitment ($p < .01$) ratings than their non-innovative counterparts. Yet, unlike the other studies, participants in this setting are actually *more* likely to say that they would personally invest in an innovative woman’s company over a non-innovative woman’s company ($p < .01$).

⁷ The geothermal energy description is adapted from the actual winning business model of an investment competition for undergraduate entrepreneurs at a large research university in the northeastern United States.

Table 7 presents random effects regression estimates and tests for significant differences between Study 3 and Study 2 coefficients. Tests for differences between the two studies were obtained from pooled models that included a Study 3 dummy variable, as well as the two-way and three-way interactions between Study 3, innovativeness and gender of entrepreneur.

Overall, these patterns of effects are in many ways quite similar to the previous studies. For instance, the interaction effect between Innovative and Woman Entrepreneur on investment likelihood is significant and positive ($\beta=0.54, p<.05$), indicating that innovation is associated with greater investment worthiness for women entrepreneurs than for men. This finding is similar to both measures of investment in Study 1 and the investment point measure in Study 2. Also, like Study 2, gender bias is again most apparent in ratings of entrepreneurial skill: participants find non-innovative high-tech women entrepreneurs to be less skilled than their male counterparts ($\beta=-0.32, p<.05$), though this bias diminishes when women entrepreneurs are innovative ($\beta=0.26, p<.10$).

Despite these similarities, there are a few key differences between the high-tech and the gender-neutral study settings. First, there is modest evidence for Hypothesis 4, that gender effects would be larger in a high-tech industry. For instance, non-innovative women entrepreneurs received lower competence ratings than their male counterparts in Study 3, whereas this was not the case in Study 2 ($p<.05$). These somewhat lower baseline expectations are consistent with the finding that the positive interaction effect between gender and innovativeness on investment likelihood is also modestly larger in a male-dominated, high-tech industry than in a gender-neutral industry ($p<.10$). Second (and perhaps not surprisingly), innovation in a high-tech industry is perceived to be generally more lucrative than in a non-high-

tech industry: innovation is associated with lower profitability ratings for both men and women entrepreneurs in Study 2, but this is not the case in Study 3 ($p < .05$).

A content analysis of the participants' written justifications for their investment decisions further indicated that participants in both the male and female condition viewed the innovative plan to be lucrative, competitive, and/or successful in the long-term (about 40% of participants in each condition). However, like to the previous studies, respondents tended to criticize the non-innovative entrepreneur and/or cite drawbacks of the non-innovative plan more often in the female condition than in the male condition. For example, unlike the non-innovative male entrepreneur, the non-innovative female entrepreneur was personally criticized for not being assertive or committed enough, not having enough experience to start a consulting company, and for having "vague" goals. Her plan was also more often discounted for having a high number of competitors and/or high labor costs.

GENERAL DISCUSSION

Both classical and contemporary theorists of organizations and entrepreneurship have long posited that cultural beliefs matter in the formation of new and novel organizations. By drawing on social psychological theory and research, this article is the first to specify and empirically test how certain cultural beliefs about gender frame the social interactions that ultimately determine whether a new organization will survive or not. Findings from three experimental studies across two cultural contexts indicate that gender status beliefs play a key role in determining the likelihood that a new organization will be deemed worthy of support.

First, participants held lower expectations for women entrepreneurs' abilities than for men entrepreneurs' abilities *in general* (i.e. for non-innovative entrepreneurs). They were also relatively less resistant to supporting innovative business plans when they were presented by

women than by men, a finding which supports the premise that innovativeness can signal a level of competence on the part of an entrepreneur that is unexpected for individuals with lower status characteristics (e.g. women). In short, women had less legitimacy to lose and more competence to gain by being innovative.

Because this general pattern of effects is consistent across all three studies, these findings are likely not an artifact of the vignettes used or the context of the study. It is possible, however, that participants rated innovative women higher in terms of entrepreneurial ability than non-innovative women in order to compensate for biasing against non-innovative women. Some research has shown, for example, that individuals are more likely to express prejudiced viewpoints when they have the opportunity to also demonstrate non-prejudicial attitudes (Monin and Miller 2001). By making this compensation, individuals are able to retain their “moral credentials.” Because participants rated non-innovative and innovative women entrepreneurs simultaneously and were forced to compare them, they may have unconsciously tried to embellish their ratings of the innovative entrepreneur to make up for their low ratings of the non-innovative entrepreneur. I am not able to tease apart this possibility with my data, but it is something that could be investigated in future research.

Second, consistent with the predictions of status characteristics theory, micro-level gender biases were more salient in settings where macro-level gender inequality is more pronounced. Specifically, gender effects were stronger in contexts where gender could be expected to be more salient as a status characteristic: the UK, a national context where gender inequality is more pronounced at the macro-level, and the high-tech energy industry, an industry that is male-dominated and that requires stereotypically male-typed skills (e.g. engineering). In addition to supporting the predictions derived from status characteristics theory, this finding also

supports sociological theories of gender, which maintain that cultural beliefs and distributions of resources at the macro-level influence patterns of behavior at the interactional level (and vice-versa) (Ferree, Lorber, and Hess 1999; Ridgeway and Correll 2004; Risman 1998). However, as indicated by the comparisons in effect sizes between studies, the macro-level societal context appears to play a comparatively greater role in affecting the salience of gender status beliefs in entrepreneurship than does the industry of the entrepreneur in question.

Third, innovation was more strongly associated with ability, effort, and rewards in the US setting than in the UK setting. By contrast, the relative ability, effort and rewards associated with innovation were not substantially greater in a (US) high-tech industry than in a (US) non-high-tech industry. This indicates that the societal context also plays a comparatively greater role in determining an individual's propensity to associate innovation with social status (and to, in turn, lend support to innovative ideas) than does the industry in which the innovation is occurring.

Because real life circumstances are typically complicated and full of varying factors, it is difficult to use observational techniques to systematically assess status-based cognitive biases. In this regard, testing the theory in a controlled laboratory setting was advantageous. This method also avoids the problem of sampling on the dependent variable (i.e. sampling only successful entrepreneurs). One limitation however, is that the experimental approach cannot address the extent to which the status beliefs examined here influence the interactions of actual entrepreneurs. For example, although these studies identify how cognitive biases may frame the initial assumptions about a given entrepreneur during a social interaction, it is likely that during the course of an actual interaction, these biases may be mitigated (or reinforced) as more information is introduced or as an entrepreneur pursues a particular interaction style or strategy. Thus, I cannot assess the degree to which status beliefs at the micro-level are responsible for the

macro-level gender gap in entrepreneurship. An important avenue of further research would be to systematically observe entrepreneurs' interactions with potential supporters and evaluate whether or not they are consistent with my status-based theoretical predictions.

THEORETICAL IMPLICATIONS AND FUTURE RESEARCH

This research makes a number of important theoretical contributions in the areas of gender inequality, organizations, and social psychology. First, despite being less constrained by existing organizational roles, relationships, work schedules, and hierarchies, I show that women entrepreneurs are likely not insusceptible to the status-based disadvantages that have been shown to contribute to the “glass ceiling” in traditional management contexts. The broader implication of my findings is that gender status beliefs likely disadvantage most women entrepreneurs, given that most entrepreneurs (especially women) do not start businesses that are particularly innovative (Aldrich and Ruef 2006; Tonoyan and Strohmeier 2005). In particular, doubts about women's competence at entrepreneurship in general may discourage them from pursuing entrepreneurship in the first place and/or disadvantage them in their quest for support, which may, in the aggregate, contribute to men's overrepresentation among entrepreneurs.

This offers a novel theoretical account for gender inequality in entrepreneurship, a phenomenon for which most previous accounts focus on individual-level resources, such as women's disadvantages in managerial experience, occupational skills, and networks. If a goal is to reduce inequality, my findings imply that, net of individual-level resources, women could mitigate their vulnerability to status-based disadvantages by strategically highlighting their innovativeness. This strategy however, would not address the underlying root of status-based stereotypes themselves. Because cultural context is a central factor shaping the salience of taken-for-granted assumptions about gender and entrepreneurship, solutions would have to come from

changes in the interrelated institutions that lend support to stereotyping processes. Therefore, the problem of gender inequality in entrepreneurship should be understood as a problem of how the cognitive frameworks through which people think about the activity of entrepreneurship are embedded in a larger system of inequality in the labor market and in other areas of society.

A task for future work would be to address the possibility of stricter ability standards for innovative women entrepreneurs. Research suggests that gender stereotypes may prompt lower minimum standards but higher confirmatory standards for women than for men (Biernat and Fuegen 2001; Biernat and Kobrynowicz 1997; Foschi, Lai, and Sigerson 1994). If this is the case for entrepreneurship, it may imply that although innovative women entrepreneurs are perceived to be more competent than other women entrepreneurs, they may be held to a stricter standard than a comparably innovative man to prove their ability. So for example, women who are innovative may be likely to make a short list of candidates for investment (because they seem unexpectedly competent compared to other women), but may be less likely to actually earn that investment when compared to men presenting similarly innovative ideas. Because these studies examined subjective ratings, and investment dollars were allocated in comparison to another entrepreneur of the same gender, I could not evaluate this possibility.

A second important theoretical extension of this work would be to examine the possible role of status beliefs in understanding other forms of inequality in entrepreneurship. Here, I developed and evaluated gender as just one relevant status characteristic, but one can imagine similar processes occurring along the lines of other diffuse status characteristics, such as age, nationality, social class, and race or ethnicity.

My findings also contribute to the literature on organizational legitimacy because they suggest that the rise of new organizational forms, and thus aggregate market change, can be

understood to be, at least in part, a function of cultural beliefs about status: cultural beliefs at the interactional level reinforce the prevailing social structure of entrepreneurship. This not only offers a micro-level mechanism for understanding why some innovative organizations survive whereas others fail, but it also integrates social psychological perspectives on status processes with cultural-cognitive institutional approaches in the study of organizations (e.g. DiMaggio and Powell 1991; Scott 2001).

By linking the macro-social and organizational context to micro-level cognitive processes, I also underscore multilevel theoretical perspectives on entrepreneurship (Ruef and Lounsbury 2007), and organizational theorists' understanding of cognitive legitimacy (Suchman 1995). For instance, while cognitive legitimacy is often understood to be contingent on macro-level conditions, such as the size of an industry, my work suggests that cognitive legitimacy may be initiated at the micro-level with the help of status beliefs. Therefore, the populations of organizations that eventually come to be perceived as legitimate should be understood as being shaped, at least in part, by status beliefs. This is important given that the characteristics of individual founders (such as their gender) play a role in determining the types of organizational structures and practices that firms adopt (Baron, Hannan and Burton 1999).

A productive extension of this work would be to broaden the scope conditions of my theory to look at the relative difficulty (or ease) with which men and women can garner support for innovative ideas *within* organizations. While status beliefs about gender and the activity of innovation in the broader culture likely carry over into organizations, organizational contexts offer an additional layer of complexity since the actors involved are embedded in an existing organizational structure and may share a culture pertaining to innovation that is unique to the organizational context. Another extension would be to examine status dynamics in

entrepreneurial teams (Ruef 2010). For example, the gender composition of the team and the gender of the perceived team leader in particular, may elicit status beliefs, thereby influencing a novel organization's likelihood of success.

Finally, this research is the first to extend status characteristics theory to a business investment context. Previous research in this tradition has focused primarily on the applicability of status-based performance expectations in task-oriented small groups (see Correll and Ridgeway 2003) or employment settings (e.g. Correll, Benard and Paik, 2007). Because the situation of nascent entrepreneurship is fraught with uncertainty, individuals seem particularly likely to fall back on status beliefs. Thus, status processes may help us understand interactional dynamics in other market or investment contexts, such as online markets or stock trading.

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Table 1. Means for Study 1

| | Male Entrepreneurs | | Female Entrepreneurs | |
|---------------------------------|--------------------|------------------|----------------------|----------------|
| | Non-Innovative | Innovative | Non-Innovative | Innovative |
| <i>Business Quality Ratings</i> | | | | |
| Profitability | 3.29 (0.64) | 2.23 (0.62)*** | 2.83 (0.64) | 2.88 (0.74) |
| Likelihood of investment | 2.76 (0.94) | 2.05 (0.86)** | 2.08 (0.72) | 2.46 (1.10) |
| Investment Points | 68.33 (19.65) | 31.67 (19.65)*** | 49.38 (25.80) | 50.63 (25.80) |
| <i>Ability Ratings</i> | | | | |
| Competence | 3.86 (0.57) | 3.14 (0.79)*** | 3.17 (0.64) | 3.54 (0.51)* |
| Capability | 3.67 (0.65) | 2.81 (0.87)*** | 3.17 (0.76) | 3.17 (0.70) |
| Skill | 3.29 (0.56) | 3.05 (0.92) | 3.08 (0.83) | 3.13 (0.74) |
| Relative Competence | 4.05 (1.32) | 3.95 (1.32) | 3.04 (1.16) | 4.96 (1.16)*** |
| <i>Effort Ratings</i> | | | | |
| Aggressiveness | 2.38 (0.67) | 2.86 (1.01)* | 2.04 (0.99) | 2.63 (0.88)* |
| Commitment | 3.90 (0.62) | 4.10 (0.88) | 3.71 (0.62) | 4.00 (0.66) |

Notes: Standard deviations shown in parentheses.

* $p < .05$ one-tailed test for means between innovators and non-innovators; ** $p < .01$, *** $p < .001$

Table 2. Regressions for Study 1

| | Business Quality Ratings | | | Ability Ratings | | | Effort Ratings | | |
|-------------------------------|--------------------------|-----------------------|---------------------|--------------------|--------------------|-------------------|---------------------|-------------------|-------------------|
| | Profitability | Investment Likelihood | Investment Points | Competence | Capability | Skill | Relative Competence | Aggressiveness | Commitment |
| Innovative Entrepreneur | -1.05*** (0.20) | -0.71** (0.28) | -36.67*** (7.14) | -0.71*** (0.17) | -0.86*** (0.22) | -0.24 (0.24) | -0.10 (0.38) | 0.47* (0.26) | 0.19 (0.21) |
| Woman Entrepreneur | -0.45* (0.20) | -0.68** (0.27) | -18.96** (6.75) | -0.69*** (0.19) | -0.50* (0.22) | -0.20 (0.22) | -1.01** (0.37) | -0.34 (0.27) | -0.20 (0.21) |
| Innovative*Woman Entrepreneur | 1.09*** (0.28) | 1.08** (0.38) | 37.92*** (9.78) | 1.09*** (0.23) | 0.86** (0.30) | 0.28 (0.32) | 2.01*** (0.52) | 0.11 (0.36) | 0.10 (0.28) |
| Intercept | 3.28*** (0.15) | 2.76*** (0.20) | 68.33*** (5.05) | 3.86*** (0.14) | 3.67*** (0.16) | 3.29*** (0.17) | 4.05*** (0.27) | 2.38*** (0.20) | 3.90*** (0.15) |

Notes: Standard errors shown in parentheses.

* $p < .05$; ** $p < .01$, *** $p < .001$

Table 3. Mediation Analysis for Study 1

| | Profitability | Investment Likelihood | Investment Points |
|-------------------------------|-----------------|-----------------------|-------------------|
| Innovative Entrepreneur | -0.77 (0.21)*** | -0.47 (0.30) | -35.80 (6.27)*** |
| Woman Entrepreneur | -0.18 (0.20) | -0.44 (0.29) | -9.77 (6.33)+ |
| Innovative*Woman Entrepreneur | 0.66 (0.29) | 0.71 (0.41) | 19.53 (9.29)* |
| Competence | 0.39 (0.11) *** | 0.34 (0.15) * | |
| Relative Competence | | | 9.14 (1.77)*** |
| Intercept | 1.78 (0.43)*** | 1.43 (0.62)* | 31.34 (8.42)*** |

Notes: Standard errors shown in parentheses.

* $p < .05$; ** $p < .01$, *** $p < .001$

Table 4. Means by Condition for Dependent Measures from Study 2

| | Male Entrepreneurs | | Female Entrepreneurs | |
|---------------------------------|--------------------|----------------|----------------------|----------------|
| | Non-Innovative | Innovative | Non-Innovative | Innovative |
| <i>Business Quality Ratings</i> | | | | |
| Profitability | 3.18 (0.61) | 2.82 (0.82)* | 3.09 (0.82) | 2.94 (0.88) |
| Likelihood of investment | 2.57 (0.84) | 2.68 (0.86) | 2.47 (0.92) | 2.66 (1.04) |
| Investment Points | 53.57 (24.72) | 46.43 (24.72) | 46.41 (26.28) | 53.59 (26.28) |
| <i>Ability Ratings</i> | | | | |
| Competence | 3.68 (0.72) | 3.93 (0.77) | 3.90 (0.68) | 4.22 (0.71)* |
| Capability | 3.43 (0.74) | 3.32 (0.90) | 3.59 (0.84) | 3.56 (0.88) |
| Skill | 3.57 (0.74) | 3.68 (0.47) | 3.25 (0.57) | 3.71 (0.68)** |
| Relative Competence | 3.63 (1.50) | 4.38 (1.50)* | 3.65 (1.37) | 4.35 (1.36)* |
| <i>Effort Ratings</i> | | | | |
| Aggressiveness | 2.25 (0.75) | 3.64 (0.73)*** | 2.50 (0.92) | 3.53 (1.05)*** |
| Commitment | 3.68 (0.72) | 4.21 (0.68)** | 3.66 (0.65) | 4.28 (0.63)*** |

Note: Standard deviations shown in parentheses.

*p < .05 one-tailed test for means between innovators and non-innovators; **p < .01; ***p < .001

Table 5. Regressions for Study 2

| | Business Quality Ratings | | | Ability Ratings | | | Effort Ratings | | |
|-------------------------------|--------------------------|-----------------------|--------------------|--------------------|-------------------|-------------------|---------------------|---------------------|-------------------|
| | Profitability | Investment Likelihood | Investment Points | Competence | Capability | Skill | Relative Competence | Aggressiveness | Commitment |
| Innovative Entrepreneur | -0.36*† (0.21) | 0.11† (0.24) | -7.14†† (6.83) | 0.25*††† (0.15) | -0.11†† (0.22) | 0.11 (0.14) | 1.07**† (0.40) | 1.39***†† (0.22) | 0.52*** (0.15) |
| Woman Entrepreneur | -0.08 (0.21) | -0.10 (0.24) | -7.17 (6.62) | 0.23††† (0.19) | 0.17† (0.22) | -0.32* (0.16) | 0.07† (0.39) | 0.25† (0.23) | -0.02 (0.17) |
| Innovative*Woman Entrepreneur | 0.20† (0.28) | 0.08† (0.34) | 14.33+† (9.96) | 0.06††† (0.20) | 0.08† (0.31) | 0.36* (0.19) | -0.13†† (0.55) | -0.36 (0.30) | 0.09 (0.21) |
| Intercept | 3.17*** (0.15) | 2.57*** (0.17) | 53.57*** (4.83) | 3.68*** (0.14) | 3.43*** (0.16) | 3.57*** (0.12) | 3.46*** (0.28) | 2.25*** (0.17) | 3.68*** (0.13) |

Notes: Standard errors shown in parentheses.

+p < .10; *p < .05; **p < .01, ***p < .001; †Coefficients differ from Study 1 at p < .05; †† p < .01; ††† p < .001

Table 6. Means for Study 3

| | Male Entrepreneurs | | Female Entrepreneurs | |
|---------------------------------|--------------------|----------------|----------------------|----------------|
| | Non-Innovative | Innovative | Non-Innovative | Innovative |
| <i>Business Quality Ratings</i> | | | | |
| Profitability | 3.28 (0.73) | 3.50 (0.92) | 3.32 (0.93) | 3.37 (0.77) |
| Likelihood of investment | 2.88 (0.79) | 2.81 (0.86) | 2.78 (0.13) | 3.37 (0.15)** |
| Investment Points | 48.34 (3.84) | 51.53 (3.86) | 46.90 (3.63) | 52.85 (3.65) |
| <i>Ability Ratings</i> | | | | |
| Competence Index | 3.92 (0.46) | 3.99 (0.48) | 3.66 (0.47) | 4.04 (0.52)*** |
| Capability | 3.50 (0.57) | 3.41 (0.76) | 3.41 (0.74) | 3.59 (0.83) |
| Relative Competence | 3.66 (1.26) | 4.34 (1.26)* | 3.88 (1.33) | 4.12 (1.33) |
| <i>Effort Ratings</i> | | | | |
| Aggressiveness | 2.69 (0.86) | 3.72 (0.92)*** | 2.85 (0.79) | 3.78 (0.82)*** |
| Commitment | 3.81 (0.59) | 4.25 (0.67)** | 3.66 (0.85) | 4.12 (0.75)** |

Notes: Standard deviations shown in parentheses.

* $p < .05$ one-tailed test for means between innovators and non-innovators; ** $p < .01$, *** $p < .001$

Table 7. Regressions for Study 3

| | Business Quality Ratings | | | Ability Ratings | | | Effort Ratings | | |
|-------------------------------|-----------------------------|------------------------------|--------------------|------------------------------|-------------------|-------------------|---------------------|-------------------|-------------------|
| | Profitability | Investment Likelihood | Investment Points | Competence | Capability | Skill | Relative Competence | Aggressiveness | Commitment |
| Innovative Entrepreneur | 0.25 ^b (0.20) | 0.01 (0.20) | 3.76 (5.50) | 0.20* (0.10) | -0.02 (0.15) | 0.09 (0.13) | 0.65* (0.32) | 1.08*** (0.18) | 0.47*** (0.14) |
| Woman Entrepreneur | 0.06 (0.19) | -0.03 (0.20) | -0.93 (5.21) | -0.11 ^b (0.13) | -0.02 (0.17) | -0.32* (0.15) | 0.19 (0.29) | 0.21 (0.19) | -0.12 (0.17) |
| Innovative*Woman Entrepreneur | -0.22 (0.27) | 0.54* ^a (0.28) | 1.79 (7.34) | 0.07 (0.13) | 0.14 (0.20) | 0.26+ (0.18) | -0.40 (0.42) | -0.20 (0.24) | -0.04 (0.19) |
| Intercept | 3.27*** (0.15) | 2.84*** (0.15) | 48.06*** (3.95) | 3.85*** (0.10) | 3.47*** (0.13) | 3.80*** (0.12) | 3.67*** (0.23) | 2.66*** (0.15) | 3.80*** (0.13) |

Notes: Standard errors shown in parentheses.

+ $p < .10$; * $p < .05$; ** $p < .01$, *** $p < .001$;

^a Coefficients differ significantly from Study 2 at $p < .10$; ^b $p < .05$