6. Exploring gender differences in entrepreneurship: how the regulatory environment mitigates differences in early-stage growth aspirations

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1. INTRODUCTION

Why are there gender differences in the performance of new ventures? Some argue that women have less start-up capital, human capital, and work experience than their male counterparts (Alsos et al., 2006; Cheraghi and Schøtt, 2015; Fairlie and Robb, 2009; Fischer et al., 1993). Others say that women have different priorities than men, i.e., 'social feminist theory' (Fischer et al., 1993) or often choose entrepreneurship for reasons such as flexibility or to circumvent the 'glass ceiling' in traditional employment settings (Fairlie and Robb, 2009; Kephart and Schumacher, 2005; Shane, 2008). Recent advances, however, have shed light on these gender disparities, and argue that once gender selection characteristics have been sufficiently considered, e.g., firm size, sector, and risk preferences, there is no difference between genders when it comes to entrepreneurial performance (Orser et al., 2006; Robb and Watson, 2012).

 Despite these advances, gender differences in entrepreneurial activity still remain (Hechavarría et al., 2018), and societal influences continue to deter the entrepreneurial growth aspirations of women (Estrin and Mickiewicz, 2011). More work needs to be done to explain the persistence of gender differences in growth aspirations. The purpose of this study is to examine the factors that mitigate gender differences in the growth aspirations of early-stage entrepreneurs, which help to predict later actual growth (Autio, 2007). We believe this is important. Discovering contexts under which the gender differences of entrepreneurs' growth aspirations are minimized provides policy solutions toward removing the barriers women face in high-growth entrepreneurship. We propose that one factor—the regulatory environment—is a vital compo-

nent that needs to be considered when examining why gender differences in entrepreneurs' early-stage growth aspirations continue to persist.

There are several reasons to expect the regulatory environment to affect gender differences in the growth aspirations of early-stage entrepreneurs. Financial regulations affect the availability of capital, and good financial regulations ease liquidity constraints, which might disproportionately harm female entrepreneurs. Business regulations affect the ease of doing business, which might also have important gender effects, such as the role of social capital and how it disproportionately helps male entrepreneurs. Lastly, labor regulations might also play an important role, if one considers how rampant sexual violence has affected women in the workplace. Importantly, we hypothesize that gender differences in the early-stage growth aspirations of entrepreneurs are less pronounced as the quality of the regulatory environment improves.

Using data from 43 countries available in the Global Entrepreneurship Monitor (GEM) and regulatory data from the Economic Freedom of the World Index (Gwartney et al., 2016), we find that female entrepreneurs have lower growth aspirations than their male counterparts. Once one considers the quality of the regulatory environment—especially credit market regulations—we find that gender differences are reduced. More specifically, our results indicate that improving the quality of the credit market is associated with a smaller gender difference in early-stage growth aspirations.

These findings are important for several reasons. First, our findings highlight the existence of significant gender differences in early-stage growth aspirations. While our results do reveal that women entrepreneurs have lower growth aspirations than men, our findings suggest these differences can be mitigated. Because we find smaller differences in early-stage growth aspirations between genders as the credit market regulatory environment improves, we are hopeful that our findings will increase the attention paid to how regulations affect gender. Second, and relatedly, these findings have important policy implications. If one desires to remove gender differences and offer an equal playing field, then our study suggests that revisiting the credit market is a good place to start.

2.   THEORY AND HYPOTHESES

2.1   Feminist Theory

Before we proceed with our theory, it is important to clarify what is meant by 'feminist theory'. As explained in (Watson, 2002, p. 91), there are two types of feminist theory:

> *Liberal feminist theory* (Fischer et al. 1993) suggests that small and medium enterprises (SMEs) run by women will exhibit poorer performance because women are overtly discriminated against (by lenders, for example) or because of other systematic factors that deprive women of important resources (for example, business education and experience). By way of contrast, *social feminist theory* (Fischer et al. 1993) suggests that men and women are inherently different by nature. These differences do not imply that women will be less effective in business than men, but only that they may adopt different approaches, which may or may not be as effective as the approaches adopted by men.

In this study, we argue that regulatory barriers might play an important role in shaping how gender differences emerge in early-stage entrepreneurship, which is based on *liberal feminist theory* (Fischer et al., 1993). Certainly, there might be some merit to examining socio-cultural approaches consistent with *social feminist theory*, but we believe this is less relevant in our context.

Feminist theory[1] recognizes that there are inherent cultural and gender biases toward women. Aristotle stated that 'women were weak, cautious, domesticated, and nurturing while men occupy the opposite stance thus, making them naturally superior' (Marlow and Patton, 2005, p. 720). Further, men have been equated with 'the male, public citizen who is deemed rational, abstract, impartial, independent, active, and strong whereas women, linked with the private sphere of the home, are characterized as noncitizens as they are assumed to be emotional, irrational, dependent, passive, and focused upon domestic concerns' (Lister, 2003, p. 71).

These socio-cultural biases are problematic if one considers how society often devalues female credibility. Occupational segregation and domestic/caring responsibilities are prevalent for women (Maushart, 2008), and these 'splits' (Hall, 1997) often act as impediments for women to acquire credibility and raise capital (Marlow, 2002). Hence, in the context of early-stage entrepreneurship, feminist theory suggests that women face substantial hurdles in the venture creation process. The liberal feminist solution[2] is to remove the financial, administrative, and labor market barriers that disproportionately affect women entrepreneurs, and consequently, 'level the playing field' (Cockburn, 1991; Marlow and Patton, 2005). Accordingly, we tie liberal feminist theory

to institutional theory to relate how these regulatory barriers might dispropor-
tionately affect women entrepreneurs.

2.2   Institutional Theory

Institutions are 'the humanly devised constraints that shape human interaction'
(North, 1990, p. 3). Institutions 'consist of both informal constraints (sanctions,
taboos, customs, traditions, codes of conduct), and formal rules (constitutions,
laws, property rights)' (North, 1991, p. 97). Informal constraints refer to the
norms of social customs and are often referred to as 'culture' whereas formal
rules are created by the government and represent our laws we must abide
by. Mirroring this framework, institutions have also been described under
the heading of regulative, normative, and cultural-cognitive (Scott, 2008).
Regulative denotes regulations, laws, and legislation that affect behavior.
Normative refers to the social norms and cultural-cognitive refers to the deeply
embedded beliefs that affect behavior.

Williamson (2000) illustrates these formal rules and informal sanctions
using a conceptual framework in a four-level hierarchy, which has been
recently applied to the institutional context of entrepreneurial action (Bylund
and McCaffrey, 2017; Estrin et al., 2013; Misangyi et al., 2008; Pacheco et
al., 2010). This framework begins at the top (level one) with the informal con-
straints (i.e., customs, traditions, and norms). These institutions are entrenched
in society and emerge spontaneously over a long period of time (100 to 1000
years). Formal institutions (level two) represent the institutional environment
that defines the 'rules of the game' (North, 1991, p. 98), which take less
time to change (10 to 100 years). Formal institutions are the rules that define
action, which often define property rights and regulatory actions. These are
the rules that entrepreneurs must abide by. Governance (level three) represents
the play of the game or how governance structures align with transactions.
Governance structures take even less time to change (1 to 10 years). Lastly,
individual action (level four) depicts the choices individuals make, which
include resource allocation and employment choices (e.g., entrepreneurship).
The choices entrepreneurs make depend critically on the higher three levels of
hierarchy (Bylund and McCaffrey, 2017; Williamson, 2000).

Institutions are considered vital for entrepreneurship (Acemoglu et al., 2005;
Baumol, 1990; Williamson, 2000), and evidence suggests that high-quality
pro-market institutions encourage productive entrepreneurship and innovation
(Bjørnskov and Foss, 2008, 2016; Boudreaux, 2014, 2017; Boudreaux et
al., 2019; McMullen et al., 2008; Nyström, 2008; Sobel, 2008). Depending
on the context, institutions can either encourage innovation and the market
process (i.e., productive), encourage redistributive effects (i.e., unproductive),
or encourage rent seeking and the creation of entry barriers (i.e., destructive)

to reduce contestability (Baumol, 1990; Sobel, 2008). This occurs because the institutional context affects the *allocation* of the supply of entrepreneurs towards different sectors (Boudreaux et al., 2017; Gohmann et al., 2008; Murphy et al., 1991). When the returns to productive entrepreneurship exceed the returns to lobbying, entrepreneurs find it more profitable to engage in productive entrepreneurship and vice versa. In support of these findings, recent sensitivity analyses conclude that economic institutions (level two) are the strongest antecedents of opportunity-motivated entrepreneurship across countries (Nikolaev et al., 2018), which supports a general consensus that government size, the tax burden, and the welfare state are robustly negatively correlated with entrepreneurial activity (Bjørnskov and Foss, 2008; Boudreaux et al., 2017; Lihn and Bjørnskov, 2017; Nyström, 2008). We now turn to an analysis of how these level two economic institutions (i.e., regulative) affect the early-stage growth aspirations of different genders.

2.3 Hypotheses Development

2.3.1 Financial regulations

A substantial literature indicates that financial capital[3] is an important anteced-ent of entrepreneurship (Acs and Szerb, 2007; Fairlie and Krashinsky, 2012). By alleviating liquidity constraints,[4] financial capital helps assist nascent firm survival (Blanchflower and Oswald, 1998; Evans and Jovanovic, 1989; Holtz-Eakin et al., 1994; Lindh and Ohlsson, 1996)—especially during firms' formative years (Bates, 1990). However, there is reason to believe that one's gender plays an important role in the credit rationing decision, and this might consequently explain some of the variation in entrepreneurial activity between genders.

Liberal feminist theory (Fischer et al., 1993) argues that women face dis-crimination in financial lending. Because women face socio-cultural biases (Chell and Baines, 1998; Minniti and Nardone, 2007), women are perceived to be less credible than men (Marlow and Patton, 2005). For instance, findings from The Diana Project indicate that women face gender myths, which hinder their ability to raise venture capital (Brush et al., 2008). Studies suggest that men have better access to capital than women—especially external equity capital (Orser et al. 2006)—and women must pay higher interest rates, on average, when they do gain access to the loans (Muravyev et al., 2009). This has important implications for entrepreneurship.

We expect it is more difficult for women to grow their ventures in low-quality financial regulatory environments, which significantly hampers their expectations for future growth. In this environment entrepreneurs must rely on their own sources of capital and funding because it is more difficult to navigate the difficult financial regulations. This is especially true for women,

who face discrimination in lending (Muravyev et al. 2009). Burdensome financial regulations deter entry and existing job growth by increasing the administrative burden (Djankov et al., 2002). This is important because venture capital has been shown to increase entrepreneurship (Kortum and Lerner, 2001).

In contrast, it should become easier for women to grow their ventures in high-quality financial regulatory environments, which has a positive effect on growth aspirations. An environment that has high-quality financial regulations has lower interest rates and better access to capital and other external sources of funding, such as collateral (Simoes et al., 2016). Therefore, increasing the quality of financial regulations should make it easier for women to receive financial capital. Consequently, this should help alleviate gender differences in lending, which should provide a more even playing field for women, since women now find it easier to access capital. Finally, if women find it easier to access capital in high-quality financial regulatory environments, then men will no longer have an advantage over women, all else held equal. For these reasons, we propose our first hypothesis:

Hypothesis 1: Higher quality credit market regulations reduce gender differences in early-stage growth aspirations.

2.3.2   Business regulations

High entry barriers reduce new venture entry (Dean and Meyer, 1996), and one such entry barrier—business regulations—has been shown to deter new venture start-up rates (De Soto, 2000; Djankov et al., 2002) and growth rates of new ventures. These business regulations increase the costs of doing business including licensing restrictions, administrative requirements, bureaucracy costs, tax compliance, and even the costs associated with bribes and favoritism (Djankov et al., 2002; Gwartney et al., 2017). Business regulations deter entry by increasing the costs of new venture formation (Ho and Wong, 2007), however, there are reasons to believe that business regulations might affect entrepreneurs' early-stage growth aspirations differently for men and women.

Liberal feminist theory (Fischer et al., 1993) argues that women face discrimination that is imbued in socio-cultural biases. These biases, in turn, deter entry and existing firm growth through high regulatory costs and have different effects on women than men. We expect that it is more difficult for women to form productive entrepreneurial ventures in low-quality administrative regulatory environments that have higher costs of doing business. Consequently, we expect women entrepreneurs to have lower early-stage growth aspirations than men. For instance, studies show that highly regulated economies are susceptible to corruption (Holcombe and Boudreaux, 2015). If bribes are a cost of doing business that is often required to get the business established (De Soto,

2000), then it is reasonable to believe that these highly regulated environments might disproportionately harm women because women bribe less than men (Swamy et al., 2001).

It should be easier, however, for women to grow their ventures in an environment that decreases the costs of doing business. As a result, we expect that women entrepreneurs will increase their growth aspirations as the quality of the business environment improves. In contrast to the low-quality environments, there is less corruption (Mauro, 1995; Mo, 2001), and because women bribe less than men (Swamy et al., 2001), women are less affected by these burdensome administrative and regulatory costs. Work experience and human capital accumulation also alleviate gender differences in entrepreneurship (Cheraghi and Schøtt, 2015) and lower costs of doing business (Djankov et al., 2002). This might make it easier to accumulate work experience and human capital through on-the-job training. We expect these environments to help mitigate gender differences in early-stage growth aspirations. Thus, the high-quality business regulatory environment should even the playing field, which is important because it can help reduce discrimination, which has been argued to attribute to gender disparities in areas such as lending and consumption (Fairlie and Robb, 2009). Based on these findings we propose that:

Hypothesis 2: Higher quality business regulations reduce gender differences in early-stage growth aspirations.

2.3.3 Labor market regulations

Liberal feminist theory (Fischer et al., 1993) argues that women face discrimination in society. While we have suggested this discrimination affects financial and business regulations, it is also possible that the discrimination works through labor regulations, such as hiring and firing regulations, the costs of worker dismissals, and collective bargaining issues.

An important literature on labor market regulations and entrepreneurial intensity explains how restrictive labor market regulations reduce entrepreneurship rates across countries (Acs and Szerb, 2007; Van Stel et al., 2007). Consider, for example, how more flexible labor regulations might influence entrepreneurial activity:

> On the side of employees, the safety of their paid job is less which may make them more likely to decide to start their own business (push effect). On the side of the entrepreneurs, they have more flexibility in running their business which makes business ownership more attractive (pull effect). (Van Stel et al., 2007, p. 182)

Moreover, there are reasons to believe that these labor market regulations might have important gender effects on the early-stage growth aspirations of entrepreneurs.

We expect that labor market regulations disproportionately affect early-stage growth aspirations of women entrepreneurs in low-quality labor regulatory environments. In these environments, labor regulations are rigid, and it is difficult to fire workers, which reduces the incentive for entrepreneurs to seek self-employment or entrepreneurship. This is especially true for women who face gender biases such as occupational segregation (Lerner et al., 1997) and gender-based occupational stereotypes (Eccles, 1994; Eccles et al., 1993). If women face biases in entrepreneurship, and labor markets are more rigid, then low-quality labor regulatory environments provide fewer incentives for women to quit traditional employment in the hopes of starting a new venture.

In contrast, women's early-stage growth aspirations are less deterred relative to men in high-quality labor regulatory environments because these environments promote job flexibility. When the labor market is more flexible, entrepreneurs can run their business in more attractive ways. They have more freedom to hire and fire workers and are not penalized for this flexibility (Gwartney et al., 2017). This is consistent with findings that economic freedom correlated with higher women's rights (Fike, 2017). As labor market freedom increases, women entrepreneurs might have better outlooks and expectations for the future. Similarly, more job flexibility is associated with higher rates of new firm entry (Van Stel et al., 2007), which might equal the playing field between genders. Thus, we propose that:

Hypothesis 3: Higher quality labor market regulations reduce gender differences in early-stage growth aspirations.

3.   DATA AND ANALYSIS

3.1   Dependent Variable

Our dependent variable of interest in this study is taken from the Global Entrepreneurship Monitor (GEM) (Reynolds et al., 2005). Growth aspirations is taken from the GEM variable, TEAYYJG5. This variable asks whether the respondent expects to employ more than five employees in the next five years, and covers entrepreneurs during the early stages of start-up activity. We use this variable to create our measure of growth aspirations, which takes a value of 1 if an individual is involved in early stage entrepreneurial activity and expects to employ more than five employees in the next five years. It takes a value of 0 otherwise.

3.2   Predictor Variables

We use regulatory data from the Economic Freedom of the World Index (Gwartney et al., 2017) to construct our regulatory measure. Regulation is the fifth area component of the Economic Freedom of the World Index (EFW), and it is comprised of three sub-components including (a) credit market regulations, (b) labor market regulations, and (c) business regulations. We examine each of these area five sub-components. Credit market regulations are calculated as the average of three measures including (i) ownership of banks, (ii) private sector credit, and (iii) interest rate controls. EFW uses data primarily from the World Bank to compile these capital market measures. Countries with higher proportions of private ownerships of banks, private sector credit, and interest rates that are determined by market forces score higher on the freedom index. Labor market regulations are calculated as the average of six measures including (i) hiring regulations and minimum wage, (ii) hiring and firing regulations, (iii) centralized collective bargaining, (iv) hours regulations, (v) mandated cost of worker dismissal, and (vi) conscription. EFW uses data primarily from the World Bank doing business report and the World Economic Forum, Global Competitiveness Report to compile these labor market measures. Countries with more flexible labor regulations, lower costs of firing, and less conscription score higher on the freedom index. Business regulations are calculated as the average of six measures including (i) administrative requirements, (ii) bureaucracy costs, (iii) starting a business, (iv) extra payments/bribes/favoritism, (v) licensing restrictions, and (vi) cost of tax compliance. EFW uses data primarily from the World Bank doing business report and the World Economic Forum Global Competitiveness Report to compile these business regulation measures. Data on bureaucracy costs, however, are compiled from the regulatory burden risk ratings from the IHS Markit. Capital market regulations, labor regulations, and business regulations are all measured on a scale from 0 to 10, where 10 indicates more free and 0 indicates less free.

We also include a measure for the entrepreneur's gender. This variable is dummy coded 1 if the entrepreneur is female and 0 if male. Gender data are taken from the Global Entrepreneurship Monitor (Reynolds et al., 2005).

3.3   Control Variables

In addition to our predictor variables of regulation and gender, we also include other individual-level variables that have been shown to correlate with entrepreneurship. Age and Age (squared) are continuous variables that denote the age of the entrepreneur and its quadratic, respectively. We include an entrepreneur's age and its quadratic to be consistent with prior studies on

the aging entrepreneur (Kautonen et al., 2017; Lévesque and Minniti, 2006) as well as others that control for curvilinear effects (Wennberg et al., 2013). High school education is measured as whether an individual has at least graduated from high school or its equivalent (secondary education) or not. It is calculated from the GEMEDUC harmonized education variable where it takes a value of 1 if an individual has a high school education and 0 otherwise. Household income is taken from the variable, GEMHHINC, which is measured in income terciles. Household income high is coded 1 if an individual's household income is in the highest income tercile and 0 if it is in the middle or lowest tercile. Household income middle is coded 1 if an individual's household income is in the middle income tercile and 0 if it is in the highest or lowest tercile. We omit the lowest income tercile, which serves as the baseline income category. Entrepreneurial ties is a proxy for an entrepreneur's social capital. Entrepreneurial ties is coded 1 if an individual knows someone who has created a business in the past two years and 0 otherwise. Entrepreneurial self-efficacy is coded 1 if the individual entrepreneur believes he or she has the knowledge, skills, and experience required to start a new business and 0 otherwise. Opportunity recognition is coded 1 if the entrepreneur envisions good business opportunities in the next six months and 0 otherwise. Fear of failure is coded 1 if the entrepreneur responds that fear of failure is likely to prevent him or her from starting a business and 0 otherwise. Recent research supports their importance in predicting and modifying entrepreneurial activity (Boudreaux and Nikolaev, 2018; De Clercq et al., 2013). These variables are all taken from the Global Entrepreneurship Monitor dataset for the years 2002 to 2012 (Reynolds et al., 2005). We also include a country-level measure of gender equality because gender equality is associated with gender differences in self-employment (Klyver et al., 2013). This measure is taken from the World Economic Forum for the years 2002 to 2010. This variable is measured on a continuous scale from 0 to 1 where 1 indicates complete equality and 0 indicates complete inequality.

Lastly, we also include control variables at the country-level that are expected to influence entrepreneurial behavior. Log GDP is the natural logarithm of a country's gross domestic product per capita. Log pop is the natural logarithm of a country's total population. These variables are taken from the World Bank's country indicator's database for the years 2002 to 2012. Log GDP is used to control for the 'natural rate' of entrepreneurship in economic development (Wennekers et al., 2005). Summary statistics and a correlation matrix are presented in Table 6.1.

Table 6.1 Mean, standard deviation, and correlation matrix

Variable	Mean	SD		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Expects more than 5 jobs in 5 years	0.27	0.45	1	1														
Age	39	11	2	-0.03*	1													
Female	0.38	0.48	3	-0.12*	0.03*	1												
Regulations																		
Credit market	8.91	1.22	4	0.03*	0.08*	0.01*	1											
Labor market	6.23	1.58	5	0.05*	0.06*	0.03*	0.24*	1										
Business	6.31	0.95	6	0.07*	0.08*	0.01*	0.47*	0.33*	1									
Household income terciles																		
High income	0.73	0.44	7	0.06*	-0.04*	-0.05*	-0.003	-0.06*	0.06*	1								
Middle income	0.33	0.47	8	-0.04*	-0.03*	-0.001	-0.000	-0.03*	0.01*	0.51*	1							
High school	0.75	0.43	9	0.08*	-0.12*	-0.004	0.03*	0.17*	0.08*	0.08*	-0.004*	1						
Entrepreneurial self-efficacy	0.86	0.35	10	0.05*	-0.01*	-0.16*	-0.01*	0.004*	-0.03*	0.07*	-0.02*	0.09*	1					

Variable	Mean	SD		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Opportunity recognition	0.54	0.50	11	0.06*	-0.07*	-0.07*	0.02*	0.03*	0.04*	0.03*	-0.02*	0.06*	0.18*	1				
Fear of failure	0.25	0.43	12	-0.06*	-0.03*	0.07*	-0.01*	-0.08*	-0.04*	-0.03*	0.02*	-0.03*	-0.13*	-0.07*	1			
Entrepreneurial ties	0.64	0.48	13	0.10*	-0.14*	-0.11*	-0.04*	-0.06*	-0.001	0.06*	-0.01*	0.08*	0.24*	0.21*	-0.04*	1		
GDP pc [a]	30.8	17.8	14	0.01*	0.05*	-0.000	0.17*	-0.19*	0.08*	-0.02*	0.001	0.10*	-0.02*	-0.01*	0.06*	-0.01*	1	
Population [b]	152	328	15	-0.04*	0.01*	0.001	-0.31*	0.01*	-0.39*	-0.05*	-0.02*	-0.02*	0.01*	-0.05*	-0.004*	-0.05*	-0.25*	1

4.   RESULTS

Our data include observations at both the individual-level and country-level. With multi-level data, standard estimation techniques (e.g., OLS) in the presence of clustered data increase the possibility of Type 1 errors. Standard techniques also underestimate the standard errors due to their non-normal distribution (Hofmann et al., 2000). To account for the multi-level nature of our data and because our dependent variable is dichotomous, we estimate all models using a logistic regression with country-specific random effects (i.e., random intercept model)[5]and year effects. The country-specific effects allow us to consider the nested nature of our data and the year effects allow us to control for the changing general conditions (e.g., the Great Recession in 2007–2009).
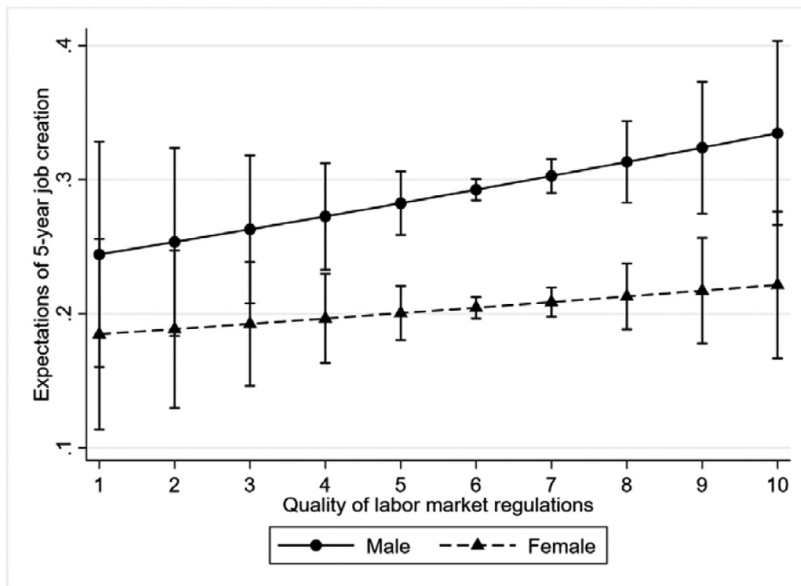

Figure 6.1   Interaction between labor market regulations and gender on five-year job-growth aspirations

We begin our analysis with an examination of how the regulatory environment affects gender differences in entrepreneurs' early-stage growth aspirations. These results are presented in Table 6.2. More specifically, model 1 is our baseline model that includes a gender dummy, the three measures of the regu-
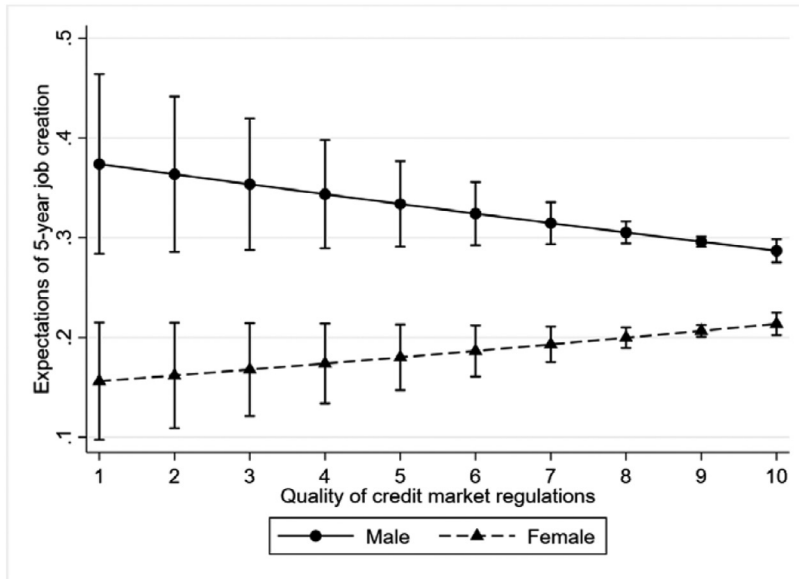
*Figure 6.2	Interaction between credit market regulations and gender on five-year job-growth aspirations*

latory environment, and a vector of control variables. Models 2–4 augment this model to include the interaction terms between each of the regulatory variables and the gender dummy.

The results from Table 6.2 indicate that there are significant gender differences in early-stage growth aspirations. Across all models, we find a negative and statistically significant effect of being female on early-stage growth aspirations, which is consistent with claims that gender differences persist in entrepreneurial activity (Fairlie and Robb, 2009; Hechavarría et al., 2018). More importantly, the findings from model 2 suggest that the quality of the credit market regulatory environment plays an important role in explaining the persistence of gender differences in early-stage growth aspirations. That is, while women entrepreneurs have lower early-stage growth aspirations, improving the quality of the credit market reduces these gender differences. This can be observed in the credit market but not in the labor market or for business regulations. These findings support hypothesis 1 but fail to support hypotheses 2 and 3. Based on these results, we conclude that gender differences in early-stage growth aspirations are largest when there are burdensome credit market regulations, and gender differences in early-stage growth aspirations are smaller when there are higher-quality credit market regulations.
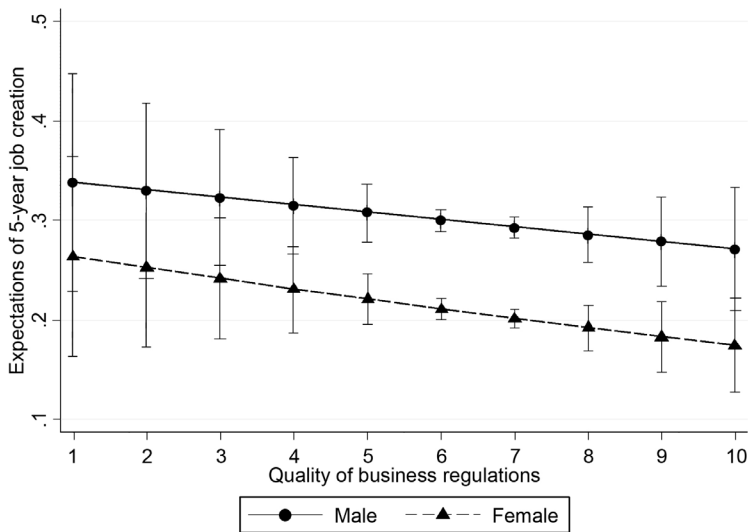
Figure 6.3   Interaction between business regulations and gender on five-year job-growth aspirations

Because interaction effects are notoriously difficult to interpret in non-linear models such as logit (Ai and Norton, 2003), we plot the moderating effects in Figures 6.1, 6.2, and 6.3. The findings from these interaction effects support the empirical analysis in Table 6.2. Consistent with the findings in Table 6.2, we find that credit market regulations moderate the relationship between gender and early-stage growth aspirations. That is, while women entrepreneurs have lower early-stage growth aspirations than men, improving the quality of the credit market reduces these gender differences. We find no evidence that the quality of the business regulations or the labor market regulations moderate the relationship between gender and early-stage growth aspirations.

5.   DISCUSSION, LIMITATIONS, AND CONCLUDING REMARKS

5.1   Discussion

Based on insights from institutional theory (North, 1990; Scott, 2008; Williamson, 2000) and feminist theory (Fischer et al., 1993), we investigated how the quality of the regulatory environment moderates gender differences in

Table 6.2　　Effects of gender and regulations on future job expectations

Dependent variable – Expect more than five jobs in five years

Variables	(1)		(2)		(3)		(4)		(5)	
Age	-0.022**	(0.01)	-0.021**	(0.01)	-0.022**	(0.01)	-0.022**	(0.01)	-0.021**	(0.01)
Age2	0.0002*	(0.00)	0.0002*	(0.00)	0.0002*	(0.00)	0.0002*	(0.00)	0.0002*	(0.00)
Female (F)	-0.490***	(0.03)	-1.491***	(0.23)	-0.365**	(0.12)	-0.467*	(0.21)	-1.21***	(0.25)
Household income a										
High income tercile	0.625***	(0.04)	0.624***	(0.04)	0.625***	(0.04)	0.625***	(0.04)	0.625***	(0.04)
Middle income tercile	-0.420***	(0.03)	-0.419***	(0.03)	-0.420***	(0.03)	-0.420***	(0.03)	-0.420***	(0.03)
High school	0.266***	(0.04)	0.266***	(0.04)	0.267***	(0.04)	0.267***	(0.04)	0.267***	(0.04)
Entrepreneurial self-efficacy	0.239***	(0.04)	0.236***	(0.04)	0.239***	(0.04)	0.239***	(0.04)	0.234***	(0.04)
Opportunity recognition	0.185***	(0.03)	0.186***	(0.03)	0.185***	(0.03)	0.185***	(0.03)	0.186***	(0.03)
Fear of failure	-0.186***	(0.03)	-0.186***	(0.03)	-0.186***	(0.03)	-0.186***	(0.03)	-0.186***	(0.03)
Entrepreneurial ties	0.315***	(0.03)	0.314***	(0.03)	0.316***	(0.03)	0.315***	(0.03)	0.314***	(0.03)
GDP (log) PPP	0.002	(0.12)	-0.001	(0.12)	0.001	(0.12)	0.002	(0.12)	-0.006	(0.12)
Population (log)	2.397	(1.27)	2.454	(1.27)	2.397	(1.27)	2.398	(1.27)	2.49	(1.28)
Regulations										
Credit market	-0.006	(0.03)	-0.04	(0.03)	-0.006	(0.03)	-0.006	(0.03)	-0.053	(0.03)
Labor market	0.031	(0.06)	0.033	(0.06)	0.036	(0.06)	0.031	(0.06)	0.042	(0.06)
Business	-0.087	(0.06)	-0.081	(0.06)	-0.087	(0.06)	-0.086	(0.06)	-0.057	(0.06)
Moderating effects										
F x Credit market regulations			0.112***	(0.03)					0.161***	(0.03)
F x Labor market regulations					-0.02	(0.02)			-0.041	(0.02)

Dependent variable – Expect more than five jobs in five years

Variables	(1)	(2)	(3)	(4)	(5)
F x Business regulations				-0.004	-0.074
				(0.03)	(0.04)
Number of observations	29,194	29,194	29,194	29,194	29,194
Number of groups (countries)	43	43	43	43	43
AIC	32245	32227	32246	32247	32220
Log-likelihood	-16061	-16051	-16060	-16061	-16045
LR test	---	***			***

the growth aspirations of early-stage entrepreneurs. Building on findings that identify gender discrimination in lending and credit markets (Marlow, 2002) as well as the ways entry barriers (Djankov et al., 2002) and labor mobility (Van Stel et al., 2007) might affect women and men differently, we hypothesized that gender differences in early-stage entrepreneurship will be largest in the worst regulatory environments. Importantly, we hypothesized that gender differences in the growth aspirations of early-stage entrepreneurs will be mitigated as the quality of the regulatory environment improves.

Overall, we found support for some but not all of our hypotheses. Our results indicate that the relationship between gender and early-stage growth aspirations depends on the quality of the credit market regulatory environment. While we find that women entrepreneurs have lower early-stage growth aspirations compared to men, these gender differences are attenuated as the quality of credit market regulations improves. We did not find any evidence to suggest that improving the quality of business regulations and labor market regulations helps to mitigate gender differences in early-stage growth aspirations.

These findings have important implications. If policy makers desire to reduce gender differences in entrepreneurship, our evidence suggests that policies designed to enhance the quality of regulations—particularly regulations in the credit market—are a good place to start. Improving the functioning of credit rationing is associated with smaller gender differences in the aspirations of early-stage entrepreneurs, which are important preconditions of future growth (Autio, 2007).

The finding that low-quality credit markets have the largest gender differences in early-stage entrepreneurship suggests that some degree of discrimination is occurring in these countries, and while we have focused on early-stage growth aspirations in this chapter, we also found similar evidence for early-stage opportunity-motivated entrepreneurship.[6] Our results are also important because they highlight that not all regulations have the same effect on attenuating these gender differences in early-stage entrepreneurship. As a result, improving the quality of labor market regulations or easing the costs of doing business are unlikely to have an effect on these gender differences. Thus, credit regulations have different effects on early-stage growth aspirations than business and labor market regulations. One potential explanation for this difference is that several studies have uncovered discrimination in lending (Marlow and Patton, 2005; Muravyev et al., 2009). Conversely, while labor and business regulations might impose barriers to entrepreneurial entry, studies typically do not suggest discrimination as an additional entry barrier (Djankov et al., 2002).

One practical implication, therefore, is for policy makers to look to improve the quality and functioning of credit markets, which should ultimately help to reduce the gender gap in entrepreneurship. Practical ways to improve this

functioning include improving the extent of private sector credit (relative to public sector), improving the reliance of bank deposits in the private sector, and reducing the control of interest rates by a country's government or central bank. Our research indicates that these broad activities, which comprise a country's quality of credit market regulations, can substantially help to reduce the gender gap in high-growth entrepreneurship.

5.2   Limitations

Inevitably, our study does face some limitations. Our findings are not unanimous for all three regulatory measures. While our findings largely suggest that gender differences in early-stage growth aspirations are most pronounced in low-quality credit market regulatory environments and become less pronounced as the quality of the regulations improves, we do not find any evidence to suggest that business regulations or labor market regulations moderate the relationship between gender and early-stage growth aspirations. Therefore, future work should emphasize why different regulations have heterogeneous effects on the gender differences in early-stage growth aspirations.

Moreover, our findings should not be taken as causal evidence that improving the quality of credit market rationing will lead to smaller gender differences in early-stage entrepreneurial aspirations, nor should our evidence imply that discrimination is unequivocally occurring in these credit markets. More specific and direct policy changes are needed to assess these causal relationships and to uncover the degree of discrimination in lending.

NOTES

1. This section draws heavily from Marlow and Patton (2005).
2. It is important to mention that social feminist theory is critical of such a solution. Social feminist theory argues that these biases are endemic in society and culture, and as such, removing regulatory barriers will not improve the inherent biases that affect women (Marlow and Patton, 2005).
3. Financial capital is measured as household income, which is strongly correlated with wealth (Bricker et al., 2016; Saez and Zucman, 2016).
4. Hurst and Lusardi (2004) argue that liquidity constraints are not really present as the majority of the relationship between assets and entrepreneurial entry is found only for those with wealth beyond the 95th percentile in the wealth distribution. However, Fairlie and Krashinsky (2012) bifurcate samples into opportunity and necessity entrepreneurs and find that, when this selection bias is considered, liquidity constraints are found to be present.
5. We tested for an alternative model of random slopes but found it did not significantly improve model fit.
6. Results available upon request.

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