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Who wants to be an entrepreneur? Entrepreneurial intentions among Saudi university students

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Using Azjen's Theory of Planned Behavior (TPB) and social learning theory, we explore the effect of perceived desirability, social support and behavioral control on the entrepreneurial intentions of Saudi university youth and the gender differences in these effects. To test our hypotheses, we use data from a unique survey of the entrepreneurial attitudes of students at King Saud University, the oldest and largest university in Saudi Arabia, conducted in the spring of 2010 (n = 950). In line with prior empirical research, we find that both the perceived desirability and the perceived feasibility of the entrepreneurial behaviors are positively associated with entrepreneurial intentions, while perceived social support has no significant effect. In addition, perceived desirability has a stronger effect for men, while perceived social support and behavioral control have a stronger effect for women. Theoretical and public policy implications are discussed.

Key words: Entrepreneurial intentions, theory of planned behavior, social learning theory, youth entrepreneurship, Saudi Arabia, logistic regression.

INTRODUCTION

After a decade of stable economic growth, Saudi economic policy is faced with two critical priorities: diversification of the country's economic base and "Saudization" of the labor force. These tasks are intensified by the "youth bulge" (roughly half of the Saudi population is younger than 24 years old) and the high unemployment rate in 15 to 24 age bracket, which stood at 28.4% as of 2009 (Ministry of Economy and Planning, 2010). It has been estimated that up to nine million new

jobs need to be created in forthcoming years in order to ensure full employment of the country's workforce (Alshumaimri et al., 2010). The entrepreneurial initiatives of university students can alleviate youth unemployment while creating new ventures in a variety of industrial and service sectors. In fact, research generally shows that young university graduates demonstrate the highest propensity towards starting a firm and the potential to start innovative new ventures (Lüthje and Franke, 2003; Bosma and Levie, 2009), spearheading the transition to a knowledge-based economy, an explicit mandate set by the Ninth Development Plan (2010 to 2014) of the Kingdom of Saudi Arabia (Ministry of Economy and Planning, 2010; Alshumaimri et al., 2010). An important component in this process is the fuller integration of women in economic activities, because women currently account for merely 15% of the Saudi workforce, among the lowest labor participation rates in the world (Almunajjed, 2010). Both public policy makers and entrepreneurship educators, therefore, are interested in identifying the factors affecting the entrepreneurial intentions of Saudi university youth and female university

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Abbreviations: TPB, Theory of planned behaviour; GDP, gross domestic product; OPEC, Organization of Petroleum Exporting Countries; WTO, World Trade Organization; GEM, global entrepreneurship monitor; TEA, total early-stage entrepreneurship activity; MENA, middle east and north Africa; KSU, King Saud university; APWU, academic rankings of world universities; RTV, Riyadh techno valley; SD, Standard Deviation; SPSS, statistical package for the social sciences.

youth in particular (Porter, 2009).

We frame our exploration in the theory of planned behavior (TPB) (Ajzen, 1987, 1991) from social psychology and in social learning theory (Bandura, 1977) from cognitive psychology. In Ajzen's (1987) TPB model, intentions are determined to a large extent by three factors: (1) the personal attitudes toward the outcomes of performing the behavior, (2) the social norms about the planned behavior and (3) the perceived behavioral control of the behavior. Social learning theory, in turn, stipulates that the different social roles and socialization experiences of men and women significantly influence their learning and higher cognitive processes (Bandura, 1977). The major premise of our study is that the perceived attractiveness, social norms and behavioral control over engaging in entrepreneurial behavior all determine the likelihood of expressing entrepreneurial intentions among Saudi university youth, but the effect of these antecedents will differ between men and women. We test our hypotheses using data from a unique survey on entrepreneurial attitudes among undergraduate students at King Saud University ($n = 950$). The statistical results show that the perceived attractiveness and behavioral control of engaging in entrepreneurial behavior are significant predictors of expressing entrepreneurial intentions, and that the most consistent predictor of entrepreneurial intentions among Saudi university youth is the level of perceived behavioral control. Further, as hypothesized, gender significantly moderates the effect of the perceived attractiveness, social norms and behavioral control on entrepreneurial intentions. Our study has two intended contributions. First, we add to the growing body of literature on entrepreneurial intentions in different socio-economic, cultural and gender contexts (Gallant et al., 2010; Díaz-García and Jiménez-Moreno, 2010; Liñan et al., 2011). Currently, there is a paucity of research on the entrepreneurial intentions of university youth in Saudi Arabia and in the broader context of the Middle East and even fewer studies on the entrepreneurial intentions of female university students in the Middle East (Gallant et al., 2010). Our study aims to address these research gaps. Next, our findings have important public policy implications, elucidating the need for targeted entrepreneurship training specifically focused on university youth in Saudi Arabia. The paper proceeds as follows. We start by presenting the theoretical argument and formulate our hypotheses. We next introduce the context of the study, report our methodology and the results from statistical tests. The paper concludes with a discussion of the study findings and their theoretical and public policy implications.

THEORETICAL BACKGROUND AND HYPOTHESES

In the psychological literature, intentions have proven the

best predictor of any planned behavior (in our case, starting an entrepreneurial venture), particularly when the behavior is rare, hard to observe, or involves unpredictable time lags (Krueger et al., 2000). Entrepreneurial intentions, or states of mind that direct attention, experience and action toward a business concept, set the form and direction of organizations at their inception (Bird, 1988). Thus, intentions predict planned behaviors, while in turn certain specific attitudes predict behavioral intentions.

The theory of planned behavior and entrepreneurial intentions

Grounded in the cognitive psychology literature, Ajzen's TPB (1987, 1991) was developed to model the relationship between an individual's attitude towards a certain behavior and the actual behavior. Its central premise is that intentions mediate the relationship between attitudinal beliefs and actual behavior. In turn, exogenous influences (such as traits, demographics, skills and social, cultural and financial support) affect attitudes and indirectly intentions and behavior (Shapero and Sokol, 1982; Soutaris et al., 2007). In Ajzen's (1987) model, intentions are determined to a large extent by three factors: (1) the personal attitudes towards the planned behavior, (2) the social norms about the planned behavior, or the perceptions of what important people in respondents' lives think about performing the behavior, and (3) the perceived behavioral control over the intended behavior. The personal attitudes towards the behavior depend on the expectations and beliefs about the personal utilities resulting from the behavior and include outcomes such as personal wealth, autonomy, or community benefits (Shapero and Sokol, 1982; Krueger et al., 2000). To a large extent, it overlaps with Shapero's construct of perceived desirability of the entrepreneurial event (Shapero and Sokol, 1982). Perceived social norms tap into the most important social influences (for example, family and friends) including any "role models" or "mentors" (Krueger et al., 2000). Finally, the perceived behavioral control overlaps with Bandura's view of perceived self-efficacy or the perceived ability to execute the target behavior (Ajzen, 1987; Krueger et al., 2000) and with Shapero's concept of perceived feasibility (Shapero and Sokol, 1982).

The TPB has been successfully used to explain entrepreneurs' start-up intentions (Krueger et al., 2000) and outcomes (Kolvereid and Isaksen, 2006). Several studies have tested the TPB framework specifically in the context of university students' entrepreneurial intentions. Kolvereid (1996) tested the model on a sample of 128 Norwegian undergraduate business students and found strong support for TPB. Krueger et al. (2000) compared the predictive power of the TPB model to Shapero's model of the entrepreneurial intent and found strong

statistical support for both models, which led them to conclude that intentions models would predict behavior better than either individual (for example, personality) or situational (for example, employment status) variables. Recent studies by Liñan et al. (2011) among Spanish university students, Soutaris et al. (2007) among British and French university students, Lüthje and Franke (2003) among students at the MIT School of Engineering, and Gallant et al. (2010) among female business students in Dubai have largely validated the key tenets of the TPB framework in a variety of cultural and institutional contexts. Thus, we hypothesize:

H_{1a}: The perceived desirability of entrepreneurial behavior will be positively associated with entrepreneurial intentions.

H_{1b}: The perceived social norms concerning entrepreneurial behavior will be positively associated with entrepreneurial intentions.

H_{1c}: The perceived feasibility of entrepreneurial behavior will be positively associated with entrepreneurial intentions.

Gender effects on entrepreneurial intentions

Social learning theory (Bandura, 1977; Harriman, 1985) suggests that differing social expectations and socialization experiences for men and women lead to divergent motivations or work preferences. Bussey and Bandura (1999) argue that a variety of factors influence gender development (for example, peers, media, educational practices, occupational systems) and explain differences in women's and men's socialization. As a result of women's different socialization experiences, they may lack strong expectations of personal efficacy toward many career related behaviors, be less confident in their abilities, score lower on self-efficacy, and therefore may not fully attain their career potential (Bandura, 1977; Kourilsky and Waldstad, 1998, Chen et al., 1998). Further, sex-role socialization experiences teach young girls what gender roles are appropriate for them and what are not. Research on gender stereotyping shows entrepreneurship is typically associated with masculine characteristics (Bird and Brush, 2002), and these stereotypical beliefs adversely affect the entry and development of women in entrepreneurship (Marlow and Patton, 2005), while males demonstrate a higher preference for entrepreneurship (Gupta et al., 2008). We expect the gender effects on entrepreneurial intentions to be even more strongly pronounced in the Saudi context, as we will discuss next.

In the Muslim societies of the Middle East, strict expectations about gender roles shape young women's socialization experiences. Women are expected to be first and foremost wives, mothers, and homemakers, while men are expected to provide for and protect their families

(McIntosh and Islam, 2010). Male power does not just rest upon an economic justification, such as the "breadwinner" identity; rather, it is culturally, religiously, socially and politically embedded (Civettini and Glass, 2008).

The gender ideology promoted in the Saudi political culture idealizes women's domesticity and elevates sex segregation (Al-Dabbagh, 2009). The strict segregation between women's and men's workplaces and socializing places has been instituted through specific laws since the 1960's (Le Renard, 2008). Saudi women increasingly have access to a well-rounded education and the right to work, they are restricted in their participation in political life (Alturki and Braswell, 2010) and do not have the opportunity to participate appropriately in economic life (Almunajjed, 2010). Further, the relatively recent phenomenon of women's entrepreneurship has not provided enough role models of successful women-entrepreneurs in order to reinforce the pursuit of entrepreneurial initiatives as a legitimate and desirable career path. In an interview, in 2006 a member of the Saudi Management Association, Women's Branch, pointed out that "a large section of women are not concerned and some think the changes are wrong; others do not want women to change or be visible" (Montagu, 2010).

As a result, female youth in Saudi Arabia may consider entrepreneurship as an inappropriate gender role and hence, have fewer motivations to engage in an entrepreneurial career. In addition, women may be uncertain if they have the necessary qualifications and skills to successfully pursue entrepreneurial initiatives. Even if the level of confidence in their entrepreneurial abilities is high, they may doubt if their business endeavor will earn social support or recognition. Hence, we hypothesize:

H₂: Gender will moderate the effect of perceived desirability, social norms and feasibility (perceived behavioral control) on entrepreneurial intentions.

H_{2a}: The relationship between perceived desirability and entrepreneurial intentions will be stronger among men.

H_{2b}: The relationship between perceived social norms and entrepreneurial intentions will be stronger among women.

H_{2c}: The relationship between perceived behavioral control and entrepreneurial intentions will be stronger among women. Figure 1 presents the conceptual model of the study.

METHODS

Research context of the study

Saudi Arabia occupies an area of around 2.15 million square kilometers in the Arabian Peninsula (about the size of Greenland), has a population of about 28 mln, and a 2009 Gross domestic product (GDP) per capita of \$ 20,600 (ranked 61st in the world, at par with Cyprus). The country possesses about 20% of the world's proven petroleum reserves, ranks as the largest exporter of

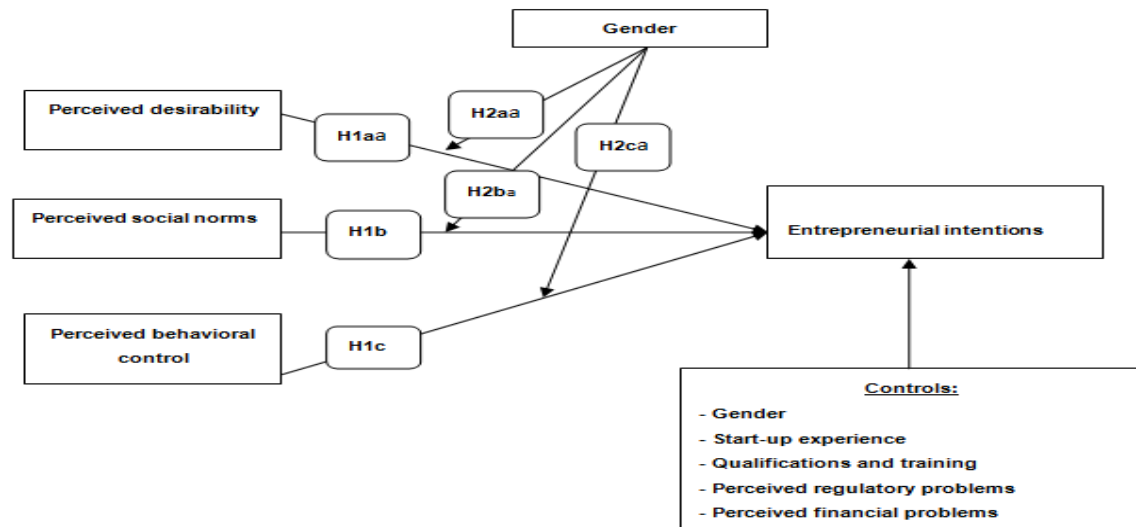


Figure 1. Theoretical framework and hypotheses.

petroleum, and plays a leading role in Organization of Petroleum Exporting Countries (OPEC). The petroleum sector accounts for roughly 80% of budget revenues, 45% of GDP, and 90% of export earnings. The government has strong control over major economic activities and is encouraging the growth of the private sector in order to diversify the economy and to employ more Saudi nationals. Foreign workers account for about 80% of the labor force, particularly in the oil and service sectors, while unemployment among Saudi nationals is currently estimated at about 12%. As part of its effort to attract foreign investment, Saudi Arabia acceded to the world trade organization (WTO) in December 2005 after many years of negotiations. The government has begun establishing six "economic cities" in different regions of the country to promote economic development. Formal and organized education in Saudi Arabia did not exist until 1948 and as of 1950, more than 90% of the Saudi Arabian population was illiterate (Al-Abdulkareem, 2003). Today, Saudi Arabia has a nationwide educational system that provides free training from preschool through university in diverse fields of modern and traditional arts and sciences.

The investment in education has increased the adult literacy rate to 86% (96% for females aged 15 to 24 and 98% for males aged 15 to 24) (World Development Indicators, 2010). Tertiary, or higher, education enrollment stood at 30% as of 2008, comparing favorably to tertiary school enrollment rates in neighboring countries, such as Qatar (11%), the United Arab Emirates (25%), Oman (27%), or Bahrain (30%) (World Development Indicators, 2010). Since 2006, about 57% of the university graduates in Saudi Arabia have been women and this rising education level has been a major factor in the increase of women-owned businesses (AlMunajjed, 2010). In sum, while the large youth population still lacks the training the private sector needs (World Fact book, 2010), university youth in Saudi Arabia increasingly has the knowledge and skills necessary for productive engagement in economic activities, including entrepreneurial activities.

According to the 2010 Global Entrepreneurship Monitor (GEM) report (Kelley et al., 2010), 9.4% of the working-age population (age 18 to 64) in Saudi Arabia is involved in business start-ups, either in the phase preceding the birth of the firm (nascent entrepreneurs), or the phase spanning 3½ years after the birth of the firm. This level of total early-stage entrepreneurship activity (TEA) is higher than the 7% average TEA rate reported in the seven predominantly Muslim Middle East and North Africa (MENA) countries included in

the survey. Notably, only 10% of the total entrepreneurship activity in Saudi Arabia is necessity-driven, for example the pursuit of self-employment when there are no better options for work, while 75% is opportunity-based, where the entrepreneur is driven by the achievement of success through exploiting an opportunity for some form of gain. The predominance of opportunity-driven entrepreneurship reflects the relatively high level of economic development in Saudi Arabia.

The relationship between entrepreneurial attitudes and entrepreneurial intentions in Saudi Arabia presents an interesting paradox. According to the 2010 GEM Global Report (Kelley et al., 2010), Saudi respondents' perceptions of entrepreneurial opportunities and capabilities to engage in an entrepreneurial career, the perceptions of the status of entrepreneurs in society, their media image and the attraction of entrepreneurship as a career choice were the highest among the seven MENA countries included in the report. Yet only 1% of the people surveyed reported they had entrepreneurial intentions, the lowest rate among the 59 countries included in the 2010 GEM report. This puzzling mismatch begs for a more comprehensive exploration of the drivers of entrepreneurial intentions, which is the goal of our research project. Table 1 compares the entrepreneurial attitudes and intentions among respondents in the predominantly Muslim MENA countries included in the 2010 Global GEM Report.

Data collection and sample characteristics

The data for the study came from a unique survey of entrepreneurial attitudes among Saudi university students, collected from undergraduate students at King Saud University (KSU). Established in Riyadh in 1957, with a student population of over 70,000 undergraduate and graduate students in 24 humanities and science colleges (including two women's colleges), King Saud University is the oldest and largest Saudi university, and the highest ranked university in the Middle East in the 2010 Academic Rankings of World Universities (APWU). The university has 15 research centers and a wide variety of programs aimed at knowledge creation, dissemination and commercialization. Key areas of scientific interest are nano technologies, life sciences and information technologies.

In March 2010, the Saudi Cabinet approved the development of Riyadh Techno Valley (RTV), a technology park aimed at promoting

Table 1. Entrepreneurial attitudes and perceptions in the GEM MENA countries in 2010.

Country	Perceived opportunities (%)	Perceived capabilities (%)	Fear of failure* (%)	Entrepreneurship as a good career choice (%)	High status of successful entrepreneurs (%)	Media attention for entrepreneurship (%)	Entrepreneurial intentions** (%)
Egypt	38.8	63.4	25.3	77.7	89.5	70.5	24.3
Iran	41.6	65.7	30.1	63.6	84.6	62.3	31.4
Pakistan	51.9	56.2	34.3	76.3	80.7	61.0	32.4
Saudi Arabia	75.8	69.3	39.0	86.8	92.3	78.0	1.0
West bank and Gaza strip	44.0	57.0	40.0	85.3	83.5	62.5	28.2
Tunisia	37.6	53.1	23.2	89.1	92.7	78.4	24.1
Turkey	36.1	54.2	25.0	71.2	76.4	61.7	19.4

* Denominator: 18 to 64 age group perceiving good opportunities to start a business. ** Denominator: 18 to 64 age groups that is not involved in entrepreneurship activity.

Source: global entrepreneurship monitor: 2010 global report, Table 2.

knowledge spillovers and commercialization of innovative activities which in turn would spur economic growth and job creation (RTV and KSU, 2010). Thus, we expected that KSU undergraduates would perceive entrepreneurship as a desirable and feasible career path.

The survey was administered in the spring of 2010 in Arabic. It included sections on entrepreneurial motivations, perceived start-up problems, as well as self-assessed qualifications and skills. We obtained responses from 598 men and 352 women undergraduate students, to a total initial sample size of n = 950, for which we report descriptive statistics.

The respondents ranged in age between 18 to 24 and all of them were Saudi nationals. Missing data in some of the categories rendered a usable sample size of 921 (569 men and 352 women), for which we report the results from the regression models.

Slightly over 12% of the survey respondents reported they had started a business before, and although over 90% expressed entrepreneurial intentions, only 7.7% of them stated they had any qualification and training to start a new business. Over 80% of the respondents identified financial gain as a motivation to start a new business, followed by a desire for creativity (48.63%) and self-achievement (42.63%).

The regulatory and financial problems in starting a new business were perceived as serious (rated above the neutral anchor), whereas problems with family disagreement and social attitudes were assessed as less

challenging (rated below the neutral anchor).

Measures

Dependent variable

Entrepreneurial intentions: Entrepreneurial intentions were measured by a single binary variable, whether or not the respondent wanted to start a new business (0 = no, 1 = yes).

Independent variables

Perceived desirability: The perceived desirability of entrepreneurial activity depends on the expectations and beliefs about the personal impacts of outcomes resulting from the behavior (Krueger et al., 2000). We used entrepreneurial motivations as proxies for the expected utilities of starting a business (Kolvereid, 1996; Carsrud and Brännback, 2011). Combining prior research on entrepreneurial motivations (Scheinberg and MacMillan, 1988; Shane et al., 1991; Birley and Westhead, 1994) with research on opportunity and necessity-based entrepreneurship (Acs et al., 2004), we measured entrepreneurial motivations by 11 binary items, asking respondents to check the most important motivations to start a new business, as follows: financial gains, necessity,

independence, providing jobs, higher social position, flexibility, creativity, gaining experience, achievement, higher control and achieving a personal vision. We then summed up the tallies of all reasons to start a new venture to obtain a measure of the degree of the expected utility of starting a new business (M = 3.91, SD = 2.09).

Perceived social norms: Perceived social norms tap the perceptions of what important people in respondents' lives think about performing a particular behavior (Krueger et al., 2000). Two items in the survey assessed the perceived strength of start-up problems coming from family disagreement and social disapproval. These were measured on a five-point Likert-type scale, from 1=completely disagree to 5 = strongly agree, with 3 as a neutral anchor. We reverse-scored the two items to assess the degree of perceived family and social support. We next subjected the items to factor analysis using principal component analysis with varimax rotation. The two items loaded on a single factor with an Eigen value of 1.409, which explained 70.440% of the total variance. The factor loadings were above the cut-off value of 0.30 (Tinsley and Tinsley, 1987). The factor score was retained for subsequent analysis. Since the scale consisted of two items, instead of coefficient alpha, we calculated the bivariate correlation between the two items, which was 0.409.

Perceived behavioral control: Perceived behavioral control refers to the perceived ability to execute the target

Table 2. Multi-item indices and scales.

Scale Items			
Perceived desirability			
Financial gain			
Lack of employment alternatives			
To be independent			
To create jobs			
To achieve a higher social position			
To have greater work flexibility			
To be creative			
To gain experience			
To achieve more in life			
To have higher control			
To achieve my vision			
			Index comprised of the tallies of the "yes" answers
	Rotated factor loadings	Number of factors extracted	Percent variance explained
Regulatory problems			
Compliance with laws and regulations	0.96	1	92.240
Fear of unfair competition	0.96		
Financial problems			
Fear of financial problems	0.81	1	64.530
Fear of financial difficulties	0.80		
Perceived social norms			
Fear of family disagreement *	0.839	1	70.440
Fear of social disapproval *	0.839		
Perceived behavioral control			
Fear of failure *	0.374	1	66.398
Fear of commitment *	0.963		
Fear of administrative burden *	0.961		

* reverse-scored.

behavior (Ajzen, 1987, 1991; Krueger et al., 2000). Three items in the survey asked about the expected start-up problems stemming from fear of failure, fear of commitment and fear of the administrative burden of running a new business. These were reverse-scored to assess the degree of perceived control over the intended entrepreneurial behavior. The items loaded on a single factor with an Eigen value of 1.992, which explained 66.398% of the total variance and all factor loadings were above 0.30. The Cronbach's alpha of 0.693 was just below the recommended value of 0.70 (Nunnally, 1978). We deemed the scale reliability acceptable for the purposes of our exploratory study, and thus retained the factor score for subsequent analysis.

Controls

We controlled for the gender of the respondents (1 = male, 0 = female), prior start-up experience (1 = yes, 0 = no), and prior entrepreneurship qualifications and training (1 = yes, 0 = no). We also controlled for the perceived regulatory and financial problems in starting a new venture, because prior research has established

that the institutional environment exerts a powerful influence on entrepreneurial intentions (Lüthje and Franke, 2003; Liñan et al., 2011). We followed Amine and Staub (2009), and measured perceived regulatory problems by two items: problems with laws and regulations and problems with unfair competition, on a five-point Likert-type scale, from 1=completely disagree to 5 = strongly agree, with 3 as a neutral anchor. We measured perceived financial problems with two items: problems with financing and perceived financial difficulties, also measured on a five-point Likert-type scale. Both scales were unidimensional, thus the respective factor scores were retained for analysis. Table 2 reports the results from the factor analysis of the multi-item scales. Table 3 reports the frequencies and descriptive statistics, whereas Table 4 presents the correlation matrix for all variables used in the statistical analysis.

Statistical procedure

Using the logistic regression procedure in the statistical package for the social sciences (SPSS) (IBM, 2010), we specified a nested logistic regression model, assessing the effect of the perceived

Table 3. Descriptive statistics and frequencies.

Variable	N	M	SD	Min.	Max.	Frequencies*	
						Yes/Male	Percent
Dependent variable							
Entrepreneurial intentions	948	0.9	0.29	0	1	855	90.19
Control							
Gender	950	0.63	0.48	0	1	597	62.84
Start-up experience	950	0.12	0.33	0	1	119	12.53
Qualifications and training	949	0.07	0.26	0	1	73	7.69
Perceived regulatory problems	944	3.74	0.99	1	5		
Perceived financial problems	941	3.74	0.92	1	5		
Independent variable							
Perceived desirability	950	3.91	2.09	0	11		
Perceived social norms	937	3.83	0.98	1	5		
Perceived behavioral control	941	2.73	0.99	1	5		

* binary variables only

Table 4. Correlations.

Variable	1	2	3	4	5	6	7	8	9
Entrepreneurial intentions	1								
Gender	0.060	1							
Start-up experience	0.030	0.030	1						
Qualifications and training	0.07*	-0.17**	0.11**	1					
Regulatory problems	0.03	-0.02	-0.03	-0.02	1				
Financial problems	-0.01	0.13***	-0.05	-0.09**	0.21***	1			
Perceived desirability	0.18**	0.29**	0.011	0.016	-0.10**	0	1		
Perceived social norms	0.08*	-0.09	0.023	0.12**	-0.17**	-21***	0	1	
Perceived behavioral control	0.17**	-0.06	0.060	0.08**	-14***	-0.26***	0.08*	0.28***	1

* Significant at $p < 0.05$ (2-tailed). ** Significant at $p < 0.01$ (2-tailed).

desirability, social norms and behavioral control on the likelihood of expressing entrepreneurial intentions, after controlling for gender, start-up experience, prior entrepreneurial qualifications and training and perceived regulatory and financial problems. More specifically, we entered the variables in three blocks, starting with the controls, then entering the independent variables and finally entering the interaction terms between gender and the three independent variables. The 2 Log Likelihood ratios is a measure of how well the model fits the data. The model χ^2 statistic tests the omnibus null hypothesis that all regression coefficients in the model are equal to zero.

As a set of variables is added to the model, their contribution to the improvement of the model is reflected in a significant increase in the model fit, as measured by a significant block χ^2 statistic. The beta coefficients (b_1, b_2, \dots, b_n) can be interpreted by taking the antilogs, or exponentiating, the coefficients. For individual independent variables, the exponentiated coefficients e^b show the increase/decrease in the likelihood of expressing entrepreneurial intentions. For binary independent variables (our measures of gender, start-up experience and prior qualifications/training), this increase/decrease is assessed relative to the baseline category (coded as 0). For continuous independent variables (our measures

of perceived regulatory and financial problems, perceived desirability, social norms and behavioral control), the exponentiated coefficients reflect the increase/decrease in the likelihood of expressing entrepreneurial intentions for each unit increase in the level of the independent variable. Table 5 presents the results from the statistical tests.

RESULTS

In the first logistic regression specification (Table 5, Model 1), we entered the control variables only. The model fit the data well (χ^2 (df) = 11.937(5), $p < .05$). Among the individual variables, prior qualifications and training had a positive and significant effect on the likelihood of expressing entrepreneurial intentions. Men were also more likely to express entrepreneurial intentions relative to women. In the second specification (Model 2), we added the direct effects of the explanatory variables in the TPB framework. This model offered a

Table 5. Logistic regression estimates on the likelihood of entrepreneurial intentions (n = 921).

Variable	Model 1		Model 2		Model 3	
	Beta	S.E.	Beta	S.E.	Beta	S.E.
Control						
Gender	0.507*	0.228	0.284	0.246	1.983†	1.031
Start-up experience	0.279	0.388	0.188	0.399	0.180	0.404
Qualifications and training	1.492*	0.732	1.256†	0.744	1.278†	0.748
Regulatory problems	0.126	0.115	0.169	0.12	0.190	0.121
Financial problems	-0.049	0.127	0.150	0.138	0.159	0.139
Independent variable						
Perceived desirability			0.305***	0.069	0.125	0.111
Perceived social norms			0.120	0.117	0.350*	0.173
Perceived behavioral control			0.597***	0.140	0.866***	0.223
Interaction						
Gender * Desirability					0.285*	0.143
Gender * Social norms					-0.398†	0.233
Gender * Behavioral control					-0.450†	0.281
Regression function						
-2 Log likelihood	573.126		522.117		511.757	
Block chi-square (df)	11.937(5)*		51.009(3)***		10.360(3)*	
Model chi-square (df)	11.937(5)*		62.946(8)***		73.306(11)***	
Nagelkerke R ²	0.027		0.140		0.163	

† significant at $p < .1$; * significant at $p < .05$; ** significant at $p < .01$; *** significant at $p < .001$.

good fit with the data and a significant improvement over the first model (model χ^2 (df)= 62.946(8), $p < .001$; block χ^2 (df) = 51.009 (3), $p < .001$). Among the individual explanatory variables, the perceived desirability was significantly and positively associated with entrepreneurial intentions, rendering support for hypothesis H1a. By computing $100 [e^{\beta} - 1]$, we established that each additional entrepreneurial motivation increased the likelihood of expressing entrepreneurial intentions by 35.6%. There was no significant association between perceived social norms and entrepreneurial intentions. Thus, hypothesis H1b failed to receive support. Finally, there was a highly significant and positive association between perceived behavioral control and entrepreneurial intentions, rendering support for hypothesis H1c. Each successive level of perceived behavioral control increased the likelihood of expressing entrepreneurial intentions by 81.7%. Hypothesis H2 stipulated that gender would moderate the effect of the three explanatory variables in the TPB model on entrepreneurial intentions. The third logistic regression specification (Model 3) included the interaction terms between gender and perceived desirability, social norms and behavioral control, respectively. The model had a good fit with the data and offered a significant improvement over the

second model (model χ^2 (df)= 73.306(11), $p < .001$; block χ^2 (df) = 10.360(3), $p < .05$).

In the third, fully subscribed model specification, the effect of perceived desirability, although in the expected direction, was no longer significant. In contrast, perceived social norms were positively and significantly associated with entrepreneurial intentions, as the degree of perceived behavioral control. Among the control variables, prior qualifications and training had a positive and significant effect of the likelihood of expressing entrepreneurial intentions. More specifically, those who reported having prior training to start a new venture were 259% more likely to express entrepreneurial intentions relative to those who had not undergone training. Men were over six times more likely to express entrepreneurial intentions relative to women. Inspecting the interaction terms, there was a significant and positive interaction between gender and perceived desirability, meaning that the perceived desirability of entrepreneurial initiatives had a stronger effect on the likelihood of expressing entrepreneurial intentions among men, in support of hypothesis H2a. There was a marginally significant (at $p < .1$) negative interaction between gender and social norms, suggesting that the effect of perceived social norms on the likelihood of expressing entrepreneurial

intentions was marginally stronger among women, offering support for hypothesis H_{2b}. There was also a marginally significant (at $p < .1$) negative interaction between gender and perceived behavioral control, suggesting that the effect of perceived behavioral control on the likelihood of expressing entrepreneurial intentions was marginally stronger among women, compared to men, in support of hypothesis H_{2c}. In sum, the results from the fully subscribed model (Model 3) offered support for H₂.

DISCUSSION

In this paper, we set out to explore the entrepreneurial intentions of Saudi university youth, an under-researched topic, yet one with important theoretical and public policy implications. We used Ajzen's (1987, 1991) TPB and Bandura's (1977) social learning theory as theoretical anchors for our study. The results from our statistical testing led us to three main conclusions, which will be discussed next.

The TPB model predicts the entrepreneurial intentions of Saudi university youth

The results from our statistical tests largely validated the predictive power of the TPB model in the context of Saudi university students. When we entered the direct effects of the TPB explanatory variables in the model specification, the model offered a good fit with the data and a significant improvement over the first model, which contained only the control variables. This is consistent with a growing body of empirical evidence from a variety of cultural and institutional contexts, such as Norway (Kolvereid, 1996), United State of America (Krueger et al., 2000), France and the United Kingdom (Soutaris et al., 2007), or Spain (Liñan et al., 2011). In sum, the results from our exploratory study suggest the TPB model is an appropriate theoretical anchor to study the entrepreneurial intentions of university youth in Saudi Arabia and potentially, in the broader context of the Middle East. At the same time, in the model which contained only the direct effects of the TPB variables, perceived desirability and perceived behavioral control were significantly and positively associated with entrepreneurial intentions, while social norms failed to reach significance. This finding is not without precedent in the entrepreneurship literature. Thus, Krueger et al. (2000) and Autio et al. (2001) found no significant direct relationship between subjective norms and entrepreneurial intentions. It has been suggested that social norms, or the perceived pressure from family, friends and significant others, may not be a powerful driver of intentions for individuals with strong internal locus of control (Ajzen, 2002) and that social norms and social support are antecedents to the

attitudes towards the behavior and the perceived behavioral control (Liñan et al., 2011). In fact, in their study of regional variations in entrepreneurial cognitions, Liñan et al. (2011) found that the effect of the social valuation of the entrepreneur (broad social norms) was higher in the more developed regions of Spain, whereas the role of the closer social environment (family and friends) was more important in less developed regions of the country. Future research should explore in more depth the relationship between the different components of the TPB model, including potential regional differences in their impact.

The level of perceived behavioral control is the most consistent predictor of entrepreneurial intentions

Out of the three components of the TPB model, the level of perceived behavioral control was the most consistently, significantly and positively, associated with entrepreneurial intentions. The importance of this variable resides from its predictive capacity, as it reflects the perception that the individual will be able to control the behavior (Ajzen, 2002; Liñan et al., 2011). Its predictive power has been confirmed by several empirical studies (Kolvereid, 1996; Krueger et al., 2000). Our study adds to this body of empirical evidence. At the outset of our investigation, we pondered over the mismatch between the highly positive attitudes towards entrepreneurial initiatives and the very low levels of entrepreneurial intentions among the general Saudi population, reported by the 2010 GEM survey (Kelley et al., 2010). Our finding about the strong effect of perceived behavioral control on entrepreneurial intentions offers a potential explanation. More specifically, the mismatch between attitudes and intentions may be partly attributed to the high fear of failure reported by the respondents (39%). Among the seven MENA countries, only respondents in the West Bank and Gaza Strip reported a higher level of fear of failure (40%). Recall that fear of failure, together with the fear of the burden of commitment and fear of the administrative burden (reverse scored) were the individual items comprising our measure of perceived behavioral control.

Findings from the GEM surveys suggest that in factor-driven and efficiency-driven countries, such as the economy of Saudi Arabia, those with the highest fear of failure rates have the lowest intentions to start businesses (Bosma and Levie, 2009). In a similar setting (rural entrepreneurs in Spain), Vaillant and Lafuente (2007) found the social stigma associated with entrepreneurial failure had a significant negative effect upon entrepreneurial activity. Our contention is that the effect of the fear of failure may be particularly strong in the Muslim countries of the Middle East, found to be highly group-oriented, hierarchical, masculine and low on future orientation (Kabasakal and Bodur, 2002). Muslims are socialized to obey government authorities, parents

and elderly people. This emphasis on social conformity, instead of promoting individual initiatives leads to acquiescence to group norms and fear of social disapproval (Zahra and Yavuz, 2007). In the case of Saudi Arabia, the reluctance to take personal initiative may be exacerbated by the low need to engage in entrepreneurial initiatives as a means of self-employment. As mentioned earlier, the level of necessity-driven entrepreneurship in Saudi Arabia as of 2010 was a low 10% (Kelley et al., 2010), far below the levels of necessity-based entrepreneurship reported in Egypt (53%), Turkey (37%), or Tunisia (24%). Thus, we call for future studies on the role of perceived behavioral control and fear of failure, in particular, in shaping entrepreneurial intentions in the context of the Muslim societies of the Middle East.

Gender moderates the effect of the TPB antecedents on entrepreneurial intentions

Perhaps the most intriguing finding of our study is the strong moderating effect of gender on the relationship between the TPB variables and entrepreneurial intentions. In the fully subscribed model, we found that the effect of personal attractiveness (or perceived desirability) was stronger for the male respondents, whereas the effect of subjective norms and perceived behavioral control was stronger for the female respondents. Our findings are consistent with social learning theory (Bandura, 1977; Harriman, 1985) which stipulates that different social expectations and socialization experiences lead to divergent motivations and work preferences for men and women. Entrepreneurship is typically associated with masculine characteristics (Bird and Brush, 2002), and traditionally males have demonstrated higher preferences for engaging in entrepreneurial activities (Kourilsky and Walstad, 1998; Gupta et al., 2008). These predispositions appear to be particularly salient in the institutional and cultural context of Saudi Arabia, where conservative views on social roles shape to a significant extent the entrepreneurial motivations of aspiring young females. Saudi women have traditionally remained invisible to the outside world, assuming predominantly marital and maternal responsibilities. Not only is the labor participation rate among Saudi women extremely low (15%), but about 85% of all working women are in education, in both teaching and administrative positions (Almunajjed, 2010).

Strict gender segregation additionally constrains their pursuit of economic and social opportunities. If the level of economic opportunity and the social recognition of women's economic achievements are low, then traditional motivations to pursue entrepreneurship such as achieving self-fulfillment or improving social status may play a significantly lower role in pushing a woman towards the path of entrepreneurship. In sum, as our results suggest, the perceived desirability of entrepreneurial

initiatives has a stronger effect on the likelihood of expressing entrepreneurial intentions among men.

Further, as expected, we found that the need to acquiesce and conform to social norms was particularly strong for Saudi women. The honor, social acceptance and social respect of a Saudi family depend critically on the irreproachable behavior of female members (Ménoret, 2005). The rise of the modern Saudi state has promoted a model of the Saudi woman as pious and virtuous, modest, educated, financially comfortable and devoted to her family (Doumato, 1992; Le Renard, 2008). Not surprisingly, the effect of social norms was significantly stronger for women, compared to men.

Finally, we found that the effect of perceived behavioral control (or perceived feasibility) was also significantly stronger for women, compared to men.

This finding is in keeping with prior research from different social and cultural contexts, which have documented women as generally less confident in their abilities and demonstrate lower levels of self-efficacy (Kourilsky and Walstad, 1998; Chen et al., 1998; Wilson et al., 2007). In the context of female Saudi youth, this gender effect may additionally reflect the significant challenges women face in their participation in economic life. Thus, a recent study of the characteristics, challenges and aspirations of Saudi businesswomen (Alturki and Braswell, 2010) revealed that, compared to their MENA counterparts, a higher percentage of the Saudi respondents reported that joining formal networks, dealing with bureaucracy, interference in paperwork, balancing work and family life, gaining access to capital and managing male employees were "more challenging as a woman". We call for future studies, using qualitative methodologies, to disentangle the components and drivers of perceived behavioral control in the Saudi context and more generally in the context of aspiring women entrepreneurs in the Middle East.

LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This study has several limitations, which need to be taken into consideration when its findings are interpreted and generalized. Our sample, consisting of undergraduate students from a single university located in the capital city of Saudi Arabia, is a potential source of selection bias. A future study based on stratified random sampling, including university students from other regions of the country, would permit robust statistical corroboration and generalization of the study results. We also recognize that our measures of the variables in the TPB model are not ideal. We were limited here by data availability. Most empirical analyses of entrepreneurial intentions have developed their own ad hoc research instruments (Chandler and Lyon, 2001; Liñan et al., 2010), making comparisons among studies somewhat problematic. While we deemed our measures adequate,

given the exploratory nature of the research project, a future survey based on published TPB construct scales will allow for a more rigorous measurement of the variables of interest to the study, as well as for comparison with findings from other institutional and economic contexts. Lastly, the social pressures and difficulties faced by female entrepreneurs in Saudi Arabia, future studies should explore in more depth the effects of family, cultural and institutional embeddedness on the entrepreneurial intentions of young Saudi women.

We particularly call for future in-depth case studies based on qualitative methodologies that would probe deeper into the underlying aspirations and motivations for entrepreneurship documented by our exploratory study. A broader question for further cross-cultural research is how different or similar the entrepreneurial intentions of university youth are among a diverse array of countries whose cultural and institutional environments are shaped by the Islamic tradition. Future comparative studies can provide a fine-grained analysis of the differences in institutional and cultural context that young aspiring entrepreneurs face in different countries and equally importantly, possible differences in how they resolve entrepreneurial challenges. Another research question is whether these differences are shrinking or remain stable in the long run and whether reforms and modernization lead to substantial convergence or important idiosyncrasies will be preserved.

IMPLICATIONS AND CONCLUSIONS

Limitations notwithstanding, the findings from the study have important implications for both entrepreneurial education and public policy. As results suggest, the likelihood of expressing entrepreneurial intentions is significantly and positively affected by prior qualifications and training. In our survey, university students who reported having prior training to start a new venture were over two and a half times more likely to express entrepreneurial intentions relative to those who had not undergone training. Therefore, the introduction of targeted entrepreneurship programs, internships, and other “hands-on” business experiences, coupled with broad private-public partnerships in university research and the creation of business incubators can be extremely fruitful in fostering entrepreneurship among university students. The launch of Riyadh Techno Valley, the science park affiliated with King Saud University is one example of the new public initiatives that facilitate technology transfer and knowledge spillovers from the universities for commercialization and entrepreneurial innovative activity (Alshumaimri et al., 2010). We also found that the perceived desirability, subjective norms and feasibility (or perceived behavioral control) differ significantly between male and female university youth. This suggests training for women needs to be carefully targeted. In addition, the establishment of mentoring

programs and support networks for female university students can be instrumental in raising young women’s self-efficacy and self-confidence.

In conclusion, our study established that entrepreneurship is a desirable career goal among Saudi university students, men and women alike. Thoughtfully designed training and targeted public policies can promote the entrepreneurial spirit among educated Saudi youth and thus facilitate the diversification of the country’s economic base and the transition to a knowledge economy.

NOTES

1. This section is based exclusively on the World Fact book’s country profile for Saudi Arabia (The World Fact book, 2010).
2. Because of the uneven distribution of entrepreneurial intentions (over 90% of the respondents indicated their intention to start an entrepreneurial venture at some point in the future), we reran our model estimation using stereotype logistic regression, utilizing the slogit procedure in STATA 11 (Stata Corp, 2009). Stereotype logistic models do not impose the proportional-odds assumption and are thus appropriate when researchers suspect that some of the alternatives are similar (Anderson, 1984). The results from the stereotype logistic regression estimation were substantively the same as from the nested logistic regression estimation and are available from the authors upon request.

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