The Role of Spiritual Capital in Innovation and Performance: Evidence from Developing Economies

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The Role of Spiritual Capital in Innovation and Performance: Evidence from Developing Economies

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Forms of capital play a significant role in the innovation and performance of start-up firms. Current entrepreneurial research has focused on the role of financial, human, and social forms of capital. We build on a large body of theory and research in sociology and economics, proposing spiritual capital as an additional influence where institutional voids are greater in the development contexts studied. Results from microcredit entrepreneurs in Kenya and Indonesia indicate significant relationships between entrepreneurs' spiritual capital and business innovation and performance, even after accounting for other forms of capital.

Introduction

Trillions of dollars in foreign aid to governments of developing economies have failed to make a significant contribution to alleviating poverty, heightening interest in entrepreneurial alternatives based on individual initiative (Banerjee & Duflo, 2011; Khavul, 2010). Concerns regarding inefficiencies in programs administered by the government or external organizations have served as an argument to support endogenous sources of productivity and economic growth (Aghion & de Aghion, 2004; Easterly, 2006). A central theme in explanations of economic growth and development is the abundance or absence of financial capital (Kuznets & Murphy, 1966; Stiglitz, 2000). While classical economics describes financial capital as one of the factors of production along with land and labor, economies—and the lives of individuals within them—are driven by dynamic forces of entrepreneurial innovation, creativity, and change that are the consequence of other more intangible forms of capital (Kling, Kling, & Schulz, 2009).

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Subsistence economies require alternative forms of capital because of institutional voids associated with inadequate infrastructure, limited protection of property rights, and uneven enforcement of contracts (North, 1989; Webb, Ireland, Hitt, Kistruck, & Tihanyi, 2011). Where formal institutions are lacking, entrepreneurs will rely to a greater extent on informal institutions of norms, values, and beliefs to conduct transactions (De Soto, 2003; North; Webb, Tihanyi, Ireland, & Sirmon, 2009). The important questions of where these norms, values, and beliefs come from and what their effect is on business development in subsistence economies require attention. Foundational work by de Tocqueville (1835/1969), Smith (1776/1904), and Weber (1904−1905/1958) suggested that these informal institutions of culture were connected to spiritual capital that in turn played a role in motivating and shaping business activity. Important work in sociology and economics (Barro & McCleary, 2003; Berger & Redding, 2011; Iannaccone, 1998; Marsh, 2007) has picked up on this theme, and organizational scholars have called for the expansion of research considering how spiritual beliefs may be associated with—both positively and negatively—the thinking and actions of individuals engaged in economic activity (Chan-Serafin, Brief, & George, 2013; Miller, 2015; Tracey, 2012).[1]

Although a consensus has not yet emerged on its definition, spiritual capital has been identified as both a collective or group religious power in society and economic activity and a characteristic of individuals (Berger & Redding, 2011; Verter, 2003). In the latter sense, which we use in this study, spiritual capital is the set of personal, intangible, and transcendent resources that emanate from an individual's spiritual or religious beliefs and experiences and may be used in economic activity. These spiritual resources are personal in being unique to each individual, intangible in being mindsets and meanings associated with people and business, and transcendent in being associated with something beyond self and natural experience (Greenway, Phelan, Turnbull, & Milne, 2007; Piedmont, 2004). Spiritual capital is a potentially important resource that is associated with but not completely accounted for by other forms of human, psychological, social, or financial capital (Marsh, 2007).

Forms of spiritual capital have shown promise in explaining individual entrepreneurial attitudes and behavior (Balog, Baker, & Walker, 2014); however, this research has rarely considered entrepreneurial activity in subsistence economies (Audretsch, Bönte, & Tamvada, 2013). Thus, the purpose of this study is to explore spiritual capital as a resource beyond other forms of capital that entrepreneurs in subsistence economies can draw upon to innovate and grow their businesses amidst institutional voids.

Hypotheses

Spiritual Capital

Our definition of spiritual capital is consistent with Berger and Redding's (2011, p. 2) notion of spiritual capital as "a set of resources stemming from religion and available for use in economic and political development." Our notion of spiritual capital extends beyond the codified set of beliefs and practices associated with religion. Spirituality, as a perceived connection with a divine or transcendent essence, is often related to religion but may be experienced outside of a religious context (Chan-Serafin et al., 2013;

1. Along with these calls for further research, we are not arguing here for or against the truth-claims of a particular spiritual or religious belief. Instead, we seek to examine how spiritual capital, broadly defined, is associated with entrepreneurship in a development context.

Zinnbauer & Pargament, 2005). Thus, our definition of spiritual capital includes but is not exclusive to the influences of traditional religion.

In this study, the form of spiritual capital assessed is an individual's faith maturity (FM). We chose FM because the FM scale (Benson, Donahue, & Erickson, 1993) has been validated and assesses the importance of an individual's faith rather than specifying what are right beliefs (Hui, Ng, Mok, Lau, & Cheung, 2011). FM includes the development of spiritual resources and expressions of these resources in interactions with others (Harrowfield & Gardner, 2010; Ji, Pendergraft, & Perry, 2006). This differs from mere indicators of religious affiliation or espoused beliefs, which fail to capture the degree to which religion or spirituality is central to a person's sense of self and applies to daily life (Weaver & Agle, 2002). FM as a form of spiritual capital parallels Allport's (1963) intrinsic religiosity by providing evidence of beliefs that are internalized and also serve as organizing principles for living. Consistent with assertions that transcendent beliefs should have identifiable consequences (Benson et al.), higher levels of FM have been shown to be associated with altruistic attitudes and behaviors (Ji et al.), positive coping behavior (Harrowfield & Gardner), and lower levels of psychological distress (Salsman & Carlson, 2005). Across cultures, FM has explained attitudes, behaviors, and measures of quality of life, beyond personality attributes (Hui et al.; Piedmont & Nelson, 2001).

Transcendent spiritual resources, whether grounded by specific institutions or not, have the potential to shape mental models that inform motives and behavior (Baker & Miles-Watson, 2010; Chan-Serafin et al., 2013; Greenway et al., 2007). In a review of 28 studies related to entrepreneurs and forms of spiritual capital, Balog et al. (2014) concluded that current evidence generally points toward positive relationships between religion or spirituality and entrepreneurial decisions, motivations, or outcomes. Yet none of the studies controlled for other forms of capital in their analyses, and results for the few studies investigating relationships with business outcomes were equivocal (i.e., Baharun & Kamarudin, 2001; Ibrahim & Angelidis, 2005; Nair & Pandey, 2006). As such, despite the promise that spiritual capital holds for explaining entrepreneurial activity and outcomes, more research is necessary, particularly as it relates to entrepreneurship in subsistence economies where over a billion people live and work (Bruton, Ahlstrom, & Obloj, 2008).

Spiritual Capital and Innovation

Innovation is the process by which entrepreneurs convert opportunities into marketable solutions (Drucker, 2006; Kuratko, Goldsby, & Hornsby, 2012). At times, these innovations can be novel and disequilibrating actions by bringing something new to the market (Schumpeter, 1934). More often, innovations are incremental changes that equilibrate markets in response to shortages and surpluses created by incomplete information (Kirzner, 1997). Either way, innovation requires both the discovery of opportunities and the willingness to pursue them. The entrepreneurial discovery process is one of "surprise" and alertness to previously unknown knowledge (Kirzner, 1997). This alertness is "a motivated propensity of man to formulate an image of the future" (Kirzner, 1985, p. 56). If entrepreneurs' spiritual beliefs include notions of transcendent provision of intangible resources such as insight and wisdom, then they may be more likely to adopt an alert mindset facilitating openness to new knowledge. In this sense, spiritual practices such as prayer and meditation may be approached "with a deliberate or serendipitous expectation that new creative insights" may emerge that have potential for innovation (Judge & Douglas, 2013, p. 52).

The willingness to pursue these discoveries may be a particular challenge for those living in poverty because of persistent beliefs that the current situation cannot be altered (Hirschman, 1970; Sen, 1999). Spiritual capital may promote a sense of agency in its adherents, who otherwise may lack the confidence to innovate (Bandura, 2003; Greenfield, 2007). "No longer are they completely dependent on the control of powerful others . . . or on resources that they do not have (financial, social). Instead, religion puts the greatest power in the universe into the hands of the weak and vulnerable" (Koenig, King, & Carson, 2012, p. 92). This imputed agency may encourage individuals to view the world differently and to more positively assess the possibility of introducing something new into the market (Marsh, 2007). In sum, spiritual capital may be a source of inspiration in recognizing opportunities and a lens by which to evaluate the viability of their pursuit (Judge & Douglas, 2013). Thus, we propose:

Hypothesis 1: In subsistence economies, entrepreneurs' spiritual capital will be positively associated with innovation after controlling for other forms of capital.

Spiritual Capital and Business Scalability

The performance of a business can be assessed in a variety of ways, including the scale of the business at a particular time that reflects prior firm growth (e.g., Sine, Mitsuhashi, & Kirsch, 2006). Business scalability among the poor is an important theme in development efforts (Rangan, 2007; West, Bamford, & Marsden, 2008). Increasing revenue and hiring employees are important for new firms because they are often operating at a size smaller than the minimum efficient scale relative to competitors (Geroski, 1995) and there is greater likelihood of failure for those firms that do not achieve growth. Yet, few businesses grow in revenue or employees (Aldrich & Ruef, 2006), particularly in businesses supported by microcredit loans in developing economies (Karlan & Appel, 2011; Morduch, 2000). Spiritual capital may alter these patterns by enhancing entrepreneurs' relationships with others (Chan-Serafin et al., 2013). In countries with weak institutions, it is common for businesses to transact with a smaller number of family and friends who are trusted (Fukuyama, 2002). However, Stinchcombe (1965) has pointed out that successful new businesses often require "transactions with strangers." Spiritual capital, if it is viewed by others in a positive light, can engender trust and reciprocity that facilitates transactions when formal institutions are lacking (McMullen, 2011; Puffer, McCarthy, & Boisot, 2010). Adam Smith (1776/1904) asserted that spiritual capital serves as the moral precondition and basis of social order necessary for ongoing market transactions, thereby reducing transaction costs by signaling honesty and accountability.

Employees also may be drawn into the business by the spiritual capital of the entrepreneur. Spiritual capital can be a signal to current and potential employees that the entrepreneur has standards for morality and ethics and is trustworthy (Drakopoulou-Dodd & Gotsis, 2007). In the absence of well-developed recruiting systems, employers and potential employees rely on their network of trusted relationships to facilitate employment decisions (Han & Han, 2009). In entrepreneurial endeavors, spiritual capital may contribute to the development of relationships that are necessary to scale the business. Thus, we propose:

Hypothesis 2a: In subsistence economies, entrepreneurs' spiritual capital will be positively associated with total sales after controlling for other forms of capital.

Hypothesis 2b: In subsistence economies, entrepreneurs' spiritual capital will be positively associated with the number of employees after controlling for other forms of capital.

Methods

Sample

We collected research data in Nairobi, Kenya and Surabaya, Indonesia, overseen by university faculty and graduate students. We chose these two countries because, despite their geographical and cultural differences (including the dominant religious influence), they are somewhat similar in their current economic status and ranking according to the Heritage Economic Freedom Index, with both countries having similar institutional voids (Kenya's world ranking is 106; Indonesia's world ranking is 116).

Nairobi, Kenya. We conducted the fieldwork for this study with a microcredit bank in Nairobi, Kenya that serves approximately 60,000 clients and has a loan portfolio of over Ksh. 1 billion. The regional office where we collected surveys serves around 4,000 clients with nine credit officers. The credit officers oversee loan repayments and resolve any group issues that may arise. Four trained field workers accompanied credit officers to collect data from group members. Prior to the larger data collection, we conducted a pilot test with some clients to confirm comprehension of survey questions. We conducted surveys in English, as knowledge of the language is common around the urban center. The clients of this bank include a relatively even split between men and women, and they operate a diverse set of businesses. The fieldworkers and supervisors verified completion of the questionnaires, providing 114 unique responses for further analysis.

Surabaya, Indonesia. The Indonesia fieldwork was conducted in May of 2010 with a microcredit organization established in 1978 to serve women. The organization has 379 operating microcredit groups with 10,900 women clients and a current loan portfolio of 133.75 billion Rp. (1.34 million USD). We conducted the fieldwork in Indonesia in May of 2010. Bilingual university faculty members translated the survey into the Indonesian language and back-translated it using a separate reviewer unassociated with the first translation effort to confirm the accuracy of the questions. We used 17 trained university students as fieldworkers, overseen by four faculty supervisors. We randomly selected groups from the agency for survey, with two randomly selected members from each group surveyed with the qualification that they currently operate a business. After completing the questionnaires, the fieldworkers coded the data, with their supervisors verifying the data input. This effort provided a total of 168 Indonesian respondents for further analysis.

Measures

Our measures were a combination of latent and observed variables. For the latent variables, respondents were asked "*how much you agree that the following statements describe you and your business"* on a Likert scale from 1 (strongly disagree) to 7 (strongly agree). Constructs are an average of the item response scores. A summary of the descriptive statistics and sources is shown in the Appendix.

Dependent Variables. Innovations involve a change in products, processes, or markets that adds value. We use an established measure from prior research that follows Schumpeter's typology of innovation (Bradley, McMullen, Simiyu, & Artz, 2012; Schumpeter, 1934). A confirmatory factor analysis using varimax rotation showed strong loadings for innovation items on two factors, similar to Bradley et al. For *novelty-related innovations*, three of the five original items had factor loadings ranging from 0.64 to 0.73 ($\alpha = 0.80$). Novelty-related innovations are disequilibrating actions in which entrepreneurs, acting on new information, bring substantial changes to the market (Schumpeter; Shane & Venkataraman, 2000). An example item is "The product or service I am offering is new to the regional market." The five items labeled *differentiation-related innovations* had factor loadings ranging from 0.71 to 0.73 ($\alpha = 0.78$). *Differentiation-related innovations* are identified as equilibrating actions of resource acquisition or recombination in which entrepreneurs respond to shortages and surpluses in the market created by incomplete information (Kirzner, 1997). An example item is "I am distributing my products differently than my competitors." *Total innovation* is the summed and then averaged score of differential innovation and novel innovation. While most respondents reported higher levels of differentiation-related innovations, this does not rule out the possibility that some entrepreneurs also introduced a novel product to the market. As such, this measure of total innovation assesses the overall effort to pursue opportunities in a manner different from that of competitors.

We used two measures of firm performance in scaling the business. Most of the entrepreneurs in our sample kept few records that allow for more typical market-based and accounting-based performance measures. *Total sales* generated and *numbers of employees* are two measures that most respondents did track. Hiring employees rather than simple self-employment has also been associated with poverty reduction (De Mel, McKenzie, & Woodruff, 2008). We asked respondents about their total sales and number of employees for the last year. We converted the sales amounts to USD currency, using exchange rates at the time of the survey. Examination of the distribution for sales and number of employees indicated skewed distributions. Therefore, the logarithm of sales and employees was used in the models.

Forms of Capital. Spiritual capital in this study was measured by an adapted measure of the short form of the FM scale (Benson et al., 1993). The scale includes vertical items measuring perceived closeness to God and the importance of this relationship: "I have a real sense that God (or Allah) is guiding me," "I feel God's presence in my relationships with other people," "My life is filled with meaning and purpose," "I talk with other people about my faith," and "I seek out opportunities to help me grow spiritually." The scale also includes horizontal items that measure the degree to which this closeness translates into altruism toward others: "I feel a deep sense of responsibility to reduce pain and suffering in the world," "I help others with their religious questions and struggles," "I care a great deal about reducing poverty in my country and throughout the world," "I try to apply my faith to political and social issues," and "I give significant portions of time and money to help other people." Two of the 12 scale items were dropped because they did not load with the other items, resulting in a 10-item scale ($\alpha = 0.85$).

Psychological capital has been defined generally as a psychological state of efficacy and positive attributions coupled with the determination to persevere regardless of adversity (Luthans, Youssef, & Avolio, 2007). We measured psychological capital with a five-item *motivational state* scale ($\alpha = .68$) consisting of items associated with self-efficacy (Bandura, 1997) and tenacity (Chandler & Jansen, 1992). Examples of items included "I

can always manage to solve difficult problems if I try hard enough" and "I continue to work hard with my business even when others oppose me."

For social capital, we measured three social structure variables that have been shown to influence innovation and sales. We followed Ruef's (2002) approach, asking entrepreneurs to identify the sources of their initial business idea using a nonmutually exclusive coding scheme. *Strong ties* refers to the number of friends or family members associated with the development of the business idea. *Weak ties* refers to the number of business contacts, such as customers or suppliers, associated with the development of the business idea. *Network diversity* is the number of ties to a heterogeneous set of people. Network diversity is calculated based on a list of the number of people from groupings of family members or friends, lending group, business customers, and business suppliers that have been involved with the business. Shannon and Weaver's (1963) concept of information entropy is used to create the measure.

Human capital provides the individual capabilities to act on opportunity, which typically include measures of educational level, family business background, and prior industry experience. *Education* level is the number of years of school attained. *Business expertise* is a relative perceptual measure of technical skills or business training in comparison to competitors on a three-category scale (more, about the same, or less). *Family business background* and *prior industry experience* are single-item dummy coded variables ($Y = 1$).

Financial capital was measured by loan size. *Loan size* is the current loan amount converted to USD divided by 100 for scaling purposes.

Controls. In addition to controlling for country fixed effects, *industry* may also influence differences in outcomes and are controlled for in the analyses. We included nine two-digit Standard Industrial Classification (SIC) industry controls (other services, SIC 93, is excluded). We also control for *competitive intensity* (the number of reported area firms competing in the same business), *business age*, and *legitimacy* measured as business registration with the government. Individual controls included *age* and *sex* (*Female* = 1). While microcredit organizations have often emphasized loans to women (our respondents from Indonesia are all women), the sample from Kenya included 50% men and 50% women.

Preliminary Analyses

The same survey items were collected in both countries with similar instructions for sampling uniformity. We checked for measurement invariance caused by potential differences in response across countries (Vandenberg & Lance, 2000). We did find variance by group (i.e., by country) on particular measures, which could lead to residuals that are not independent by country. These unobserved differences may be institutional or cultural factors, such as the predominant religion of the area. We addressed this issue in two ways. We conducted our analysis with country fixed effects to account for unobserved country-level heterogeneity. We also used bootstrap estimation, which is a well-known method to obtain consistent standard errors and bias-corrected estimates of model parameters useful for both small sample situations and where there is a potential violation of multi-level method assumptions (Goldstein, 2011).

Our measures included both latent and observable constructs. To confirm the fit of our measurement and alleviate mono-method concerns, we conducted an initial confirmatory factor analysis (Anderson & Gerbing, 1988) on the key latent measures using Stata 13 SEM. All items significantly loaded on their respective latent construct

($p < .001$, with z values greater than 7.0). An investigation of the modification indexes revealed significant covariances between error terms for two items. Because the items are within the same construct and the items are next to each other in the survey, Byrne (2013) suggests allowing these error terms to co-vary in the measurement model. The indicator factor loadings ranged from .40 to .90, with an average of .65, indicating that the items share a high degree of variance with their respective constructs. The proposed model versus the saturated model χ^2 test showed a strong fit ($\chi^2 = 582.78$, $p < .001$, 217 df, n = 276) compared to the baseline model versus the saturated model ($\chi^2 = 3{,}205.8$, $p < .001$, 253 df, n = 276). The fit indexes (CFI = .876, RMSEA = .074) are below the guidelines for excellent fit levels but within the minimum acceptable levels for initial scale development (Murphy & Davidshofer, 1988, Nunnally, 1967) and work in a development context.

Evidence for discriminant validity is assessed by χ^2 difference tests conducted between pairs of the latent dimensions (Bagozzi & Phillips, 1982). One model constrained the covariance between two latent construct dimensions (with multiple indicators) to unity, while the other model allowed the construct dimensions to co-vary freely with each of these difference tests significant at $p < .01$. Tests for common method variance included a factor analysis constraining all items to a single factor (Podsakoff et al., 2003). Only 22% of the variance is explained from this test. In addition, a single latent factor is explored in SEM with a very poor fit to the model ($\chi^2 = 1{,}649.34$, 227 df, n = 276, CFI = .518, TFI = .463, RMSEA = .142). Finally, a single common latent variable with variance fixed to 1 and links to each indicator is included in the CFA (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A χ^2 difference test (Podsakoff et al.) of the proposed model and the model with the common method variable did not show a significant improvement in fit ($p > .10$), suggesting that common method bias was limited.

We used fixed effects regression to examine the relationship between the entrepreneur's level of capital and entrepreneurial outcomes. Our initial analysis indicated relatively high correlations between age, education, and spiritual capital with models that exceed the threshold for multi-collinearity recommended by Chatterjee and Price (1991). We reduced multi-collinearity by orthogonalizing the variables of concern using a modified Gramm–Schmidt procedure (Stata orthog command) that "partials out" the common variance, creating transformed variables that are uncorrelated with one another (Saville & Wood, 1991). Later tests for multi-collinearity show average variance inflation factors in all models below 2.1.

Results

For the sake of parsimony, we proposed only a limited set of hypotheses to test, but we have included additional analyses that subdivide the data to explore the relationships further. Detailed descriptive statistics for the dataset are shown in the Appendix, and Table 1 presents the means, standard deviations, and correlations between the study variables.

Tests of Hypotheses

Model 2.1 in Table 2 is a model with controls only for comparison. Hypothesis 1 proposed that, in subsistence economies, entrepreneurs' spiritual capital (FM) will be

Table 1

Means, Standard Deviations, and Correlations of Key Variables

		Mean	SD	1	2	3	4	5	6	7	8	9
1	Total innovation	4.18	1.12									
2	Log sales	6.28	1.06	0.13								
3	Log employees	1.14	0.71	0.14	0.42							
4	Spiritual capital (FM proxy)[a]	5.96	0.74	0.52	0.10	0.11						
5	Motivational state	5.74	0.69	0.11	0.13	−0.07	0.36					
6	Strong ties	0.96	0.74	−0.10	−0.01	0.02	−0.10	−0.07				
7	Weak ties	1.20	0.88	−0.07	0.23	0.09	−0.30	−0.14	0.17			
8	Network diversity	0.54	0.46	0.05	0.19	0.11	−0.10	0.04	0.20	0.29		
9	Education level‡	6.98	4.54	0.45	0.10	0.05	−0.03	0.12	−0.26	−0.57	−0.06	
10	Business expertise	2.05	0.86	0.13	0.17	0.11	0.22	0.10	−0.15	−0.12	−0.09	0.15
11	Family business background	0.51	0.50	−0.09	0.07	−0.01	0.13	0.02	0.01	0.09	0.02	−0.06
12	Prior industry experience	0.39	0.49	0.01	0.01	0.07	0.20	0.11	0.06	−0.04	0.02	−0.02
13	Loan size/100‡	10.56	8.74	−0.15	0.16	0.18	−0.05	−0.18	0.25	0.31	0.06	0.02
14	Competitive intensity	4.82	6.41	−0.07	0.04	0.06	0.02	−0.02	−0.01	−0.05	−0.05	0.06
15	Business age	10.03	8.84	−0.15	0.13	0.10	−0.30	−0.01	0.14	0.17	0.07	−0.40
16	Legitimacy	0.50	0.50	0.02	0.02	0.06	0.27	0.12	−0.07	−0.18	0.04	0.48
17	Age‡	41.64	11.98	−0.13	−0.03	0.09	−0.02	−0.19	0.12	0.13	−0.15	0.04
18	Gender (female=1)	0.76	0.43	−0.13	−0.02	−0.03	−0.31	−0.08	0.16	0.09	0.05	−0.48

		10	11	12	13	14	15	16	17
11	Family business background	0.00							
12	Prior industry experience	0.09	0.24						
13	Loan size/100‡	0.08	−0.02	0.20					
14	Competitive intensity	0.01	0.01	0.03	0.15				
15	Business age	0.00	0.04	0.07	0.24	0.02			
16	Legitimacy	0.10	0.01	0.03	−0.15	−0.02	−0.11		
17	Age‡	0.13	0.09	0.26	−0.02	−0.02	0.24	−0.09	
18	Gender (female=1)	−0.09	0.03	−0.01	0.22	0.02	0.11	−0.12	0.04

Notes: Pairwise correlations reported. Correlations >.07 significant at .05 level
†Industry dummies included but not shown.
‡Orthogonalized variables.

positively associated with innovation. Table 2, Model 2.2 indicates that spiritual capital is positively related to total innovation ($B = .22$, $p < .05$). To explore the data further, Models 2.3 and 2.4 show separate tests of novelty-related and differential-related innovation. Spiritual capital is more positively associated with differentiation-related innovation ($B = .196$, $p < .10$) than novelty-related innovation ($B = .325$, $p > .10$). Analyses by country in Models 2.5 and 2.6 demonstrate that there are significant associations of spiritual capital with innovation for both the Indonesia and Kenya samples. Overall, the results provide consistent support for the associations in Hypothesis 1.

Hypotheses 2a and 2b proposed that, in subsistence economies, entrepreneurs' spiritual capital (FM) will be positively associated with (a) total sales and (b) employees. Model 3.1 in Table 3 indicates that spiritual capital is positively related to sales ($B = .397$, $p < .001$). Model 3.2 tests the association between spiritual capital and

Table 2

Regression of Innovation and Forms of Capital Controlling for Country Effects

Variable	(2.1)		(2.2)		(2.3)		(2.4)		(2.5)		(2.6)	
Dependent variable	Total innovation		Total innovation		Innovation—novelty		Innovation—differentiation		Total innovation Kenya		Total innovation Indonesia	
Spiritual capital												
Faith maturity proxy			0.223*	(0.099)	0.325	(0.210)	0.196+	(0.102)	0.532*	(0.215)	0.552**	(0.189)
Psychological capital												
Motivational state	0.433***	(0.061)	0.419***	(0.065)	0.129	(0.116)	0.527***	(0.086)	0.398f	(0.229)	0.315***	(0.078)
Social capital												
Strong ties	0.061	(0.148)	0.048	(0.156)	0.271	(0.344)	−0.087	(0.076)	−0.127	(0.170)	0.426*	(0.176)
Weak ties	0.247**	(0.090)	0.235*	(0.094)	0.386*	(0.174)	0.189†	(0.102)	0.189	(0.147)	0.236	(0.154)
Network diversity	−0.261*	(0.105)	−0.220*	(0.105)	−0.253	(0.184)	−0.179	(0.128)	0.345	(0.237)	−0.410**	(0.146)
Human capital												
Education level‡	−0.087	(0.075)	0.149	(0.132)	0.256	(0.264)	0.205	(0.138)	−0.270	(0.321)	0.516*	(0.231)
Business expertise	0.144*	(0.062)	0.124†	(0.068)	0.049	(0.107)	0.207**	(0.074)	0.057	(0.149)	0.099	(0.076)
Family business background	−0.182†	(0.097)	−0.211*	(0.098)	−0.092	(0.165)	−0.294*	(0.115)	−0.156	(0.244)	−0.159	(0.116)
Prior industry experience	−0.000	(0.113)	−0.043	(0.115)	−0.435*	(0.178)	0.171	(0.144)	−0.628*	(0.259)	0.102	(0.131)
Financial capital												
Loan size/100‡	−0.010	(0.049)	−0.062	(0.054)	−0.019	(0.143)	−0.129*	(0.053)	−0.007	(0.094)	−0.132	(0.100)
Controls												
Competitive intensity	−0.001	(0.006)	−0.002	(0.007)	−0.010	(0.011)	0.001	(0.008)	−0.037	(0.033)	−0.001	(0.008)
Business age	0.016**	(0.006)	0.017**	(0.006)	0.017f	(0.009)	0.013f	(0.007)	−0.012	(0.019)	0.017*	(0.007)
Legitimacy	−0.167	(0.130)	−0.123	(0.128)	0.156	(0.212)	−0.317*	(0.127)	0.351	(0.351)	−0.152	(0.156)
Age‡	−0.094*	(0.046)	−0.116*	(0.052)	−0.026	(0.083)	−0.189**	(0.059)	0.101	(0.146)	−0.124f	(0.068)
Sex (female=1)	−0.359**	(0.124)	−0.348**	(0.115)	−0.557f	(0.330)	−0.239*	(0.110)	0.069	(0.190)		
Constant	1.548***	(0.397)	9.252***	(2.631)	1.414f	(0.762)	2.044***	(0.557)	3.102*	(1.446)	1.465*	(0.635)
Log likelihood	−279.35		−276.5504		−441.9557		−302.798		−77.8853		−164.69	
R^2	0.268		0.283		0.136		0.291		0.531		0.350	
N	276		276		276		276		114		162	

Unstandardized fixed effects estimates reported along with clustered (country), bootstrapped standard errors in parentheses (n=400). Industry dummies included but not shown.
†$p<.10$; * $p<.05$; ** $p<.01$; *** $p<.001$.
‡Orthogonalized variables.

Table 3

Regression of Business Scaling (Sales and Number of Employees) and Forms of Capital Controlling for Country Effects

Variable	(3.1)		(3.2)		(3.3)		(3.4)		(3.5)		(3.6)	
Dependent variable	Log sales		Log employees		Log sales Kenya		Log sales Indonesia		Log employees Kenya		Log employees Indonesia	
Spiritual capital												
Faith maturity proxy	0.397**	(0.134)	0.313**	(0.109)	0.663*	(0.299)	0.270	(0.302)	0.153	(0.173)	0.466*	(0.211)
Psychological capital												
Motivational state	−0.050	(0.128)	−0.087	(0.073)	0.357	(0.307)	−0.101	(0.173)	0.238	(0.204)	−0.138	(0.097)
Social capital												
Strong ties	−0.177	(0.111)	−0.051	(0.073)	−0.288†	(0.151)	−0.220	(0.263)	−0.046	(0.105)	0.013	(0.176)
Weak ties	−0.029	(0.138)	−0.190*	(0.085)	0.117	(0.239)	−0.059	(0.252)	−0.107	(0.126)	−0.053	(0.194)
Network diversity	0.225	(0.173)	0.059	(0.103)	0.073	(0.357)	0.362	(0.251)	−0.497*	(0.213)	0.192	(0.156)
Human capital												
Education level‡	0.431*	(0.176)	0.371**	(0.128)	0.731*	(0.315)	0.320	(0.355)	0.630*	(0.246)	0.538*	(0.236)
Business expertise	0.179	(0.116)	0.139*	(0.068)	0.218	(0.180)	0.145	(0.151)	0.135	(0.123)	0.185†	(0.097)
Family business background	0.062	(0.168)	−0.095	(0.108)	−0.406	(0.367)	0.093	(0.208)	−0.427*	(0.199)	−0.070	(0.149)
Prior industry experience	−0.061	(0.177)	0.019	(0.114)	−0.040	(0.375)	−0.109	(0.246)	0.388	(0.269)	0.033	(0.141)
Financial Capital												
Loan size/100‡	0.033	(0.081)	0.002	(0.050)	−0.065	(0.145)	0.036	(0.188)	−0.012	(0.083)	−0.055	(0.113)
Controls												
Competitive intensity	0.020	(0.012)	0.013	(0.009)	0.068†	(0.038)	0.019	(0.015)	0.041	(0.028)	0.011	(0.011)
Business age	0.013	(0.011)	0.009	(0.008)	−0.000	(0.021)	0.015	(0.013)	0.036†	(0.020)	0.002	(0.009)
Legitimacy	0.395*	(0.189)	0.036	(0.175)	0.816*	(0.389)	0.336	(0.270)	−0.130	(0.289)	0.057	(0.236)
Age‡	−0.098	(0.083)	−0.004	(0.051)	−0.153	(0.188)	−0.126	(0.115)	−0.171	(0.135)	0.062	(0.072)
Gender (female=1)	0.174	(0.167)	0.229†	(0.119)	0.164	(0.238)			−0.016	(0.169)		
Innovation—novelty	−0.036	(0.081)	0.062	(0.041)	−0.023	(0.135)	0.010	(0.166)	0.060	(0.072)	0.208*	(0.081)
Innovation—differentiation	0.005	(0.099)	0.081	(0.064)	−0.629	(0.419)	0.045	(0.138)	−0.060	(0.254)	0.046	(0.081)
Constant	6.410***	(0.720)	1.391**	(0.478)	6.447**	(2.475)	6.839***	(1.265)	−0.609	(1.525)	2.120*	(0.865)
Log likelihood	−364.85		−240.74		−76.34		−248.05		−35.83		−161.35	
R^2	0.213		0.232		0.559		0.181		0.600		0.245	
N	276		276		114		162		114		162	

Unstandardized fixed effects estimates reported (Models 1 and 2) along with clustered (country), bootstrapped standard errors in parentheses (n=400). Industry dummies included but not shown.

†p<.10; * p<.05; ** p<.01; *** p<.001.

‡Orthogonalized variables.

number of employees. The relationship is positive and significant ($B = .313$, $p < .001$). Models 3.3 and 3.4 further explore the association between spiritual capital and sales. The relationship is positive and significant for the Kenya sample ($B = .663$, $p < .05$) but not significant for the Indonesia sample ($B = .270$, $p > .10$). Models 3.5 and 3.6 examine the association between spiritual capital and employment. The relationship is positive but not significant for the Kenya sample ($B = .153$, $p > .10$) and significant for the Indonesia sample ($B = .466$, $p < .05$). Overall, the results provide support for the association between spiritual capital and sales (H2a) and spiritual capital and employment (H2b).

Robustness Checks and Alternative Models

A potential limitation of cross-sectional data is the potential for the alternative specification of models. In this study, the logic is stronger in the hypothesized direction and supported by literature asserting that spiritual capital is a relatively stable state of an individual (Piedmont, 2004) and thus more likely an antecedent to current business development outcomes. Second, we used propensity score matching techniques (Cuong, 2013; Davidsson & Delmar, 2009) to account for potential causality issues and found that the addition of this variable to our model did not alter our results. While longitudinal data are preferable, our arguments and robustness checks give us additional confidence in our proposed relationships.

Cross-sectional data are limited in capturing new or small venture exits (Aldrich & Ruef, 2006). While our study does not capture time effects, we expect limited selection bias caused by unobserved exits from the sample because microcredit loans, including those associated with the organizations studied here, have short repayment cycles with high repayment rates (e.g., less than 6 months). Because our dependent variable is an absolute rather than a growth variable, we also tested an approximation dependent variable as a lag. This is recommended when the historical measure of the dependent variable is unavailable (Keele & Kelly, 2006). Using Model 3.2 with employees as the DV, we included a measure asking whether the number of employees had increased, decreased, or stayed the same from the previous year. Including this as an approximation for lagged employment in the models did not alter the significance or direction of spiritual capital for the model.

Discussion

Increasing financial capital availability through programs such as microcredit has generated hope that the poor will be able to improve their condition through entrepreneurship, allowing them greater participation in the economy. This study contributes to the entrepreneurship literature and the broader development and socio-political literature in several ways. Our findings indicate that the lack of business development in subsistence economies may not be merely a financial capital limitation, as previously assumed (Yunus, 1999). We find that a form of spiritual capital, FM, is associated with innovation and measures of business scalability after controlling for other sources of capital. These findings suggest at least one source of the norms, behaviors, and motivations that operate where formal institutional norms are weaker. The study also answers a call for research with practical implications for development agencies (e.g., Audretsch et al., 2013), with our findings illuminating the possibility that intangible forms of capital—particularly

spiritual capital—may play a role in the mindsets, behaviors, and relationships of entrepreneurs funded through microcredit.

Subsistence economies typically have limited resources and models for innovation that lead to the discovery of opportunities by entrepreneurs. We suggested that spiritual capital may influence the recognition of opportunities and bolster perceptions of personal agency to innovate. In this study, spiritual capital is positively associated with innovation—particularly differential innovations that are lower-risk opportunities for the poor.[2] We also suggested that spiritual capital may enhance relationships in the informal economy by altering perceptions of trust and reciprocity that fill institutional voids. We found a direct association of spiritual capital with total sales and number of employees.[3] While these relationships are significant, our research does not fully account for other possible mediators of the associations between spiritual capital and entrepreneurial outcomes. In post hoc analyses, we found little evidence for mediation through other forms of capital, but this result may be an artifact of our choice of measures. Even so, our exploratory findings point to the need for research that proposes and tests specific mechanisms by which spiritual capital might influence entrepreneurial outcomes. Chan-Serafin et al. (2013) suggest that psychological and sociological mediators have particular potential for shedding light on the how spiritual influences affect outcomes.

While we found positive relationships in this study, we would not expect all manifestations of spiritual capital to have similar effects, with some forms promoting and others hindering entrepreneurial activity (Audretsch et al., 2013, Balog et al., 2014; Chan-Serafin et al., 2013; Harrison, 2011). For example, spiritual values are sometimes associated with discriminatory or biased attitudes and behaviors that can hinder successful business dealings (Chan-Serafin et al.). Particular beliefs also may contribute to passivity instead of initiative, such as when prosperity gospel beliefs that emphasize promises of divine agency have no relationship with entrepreneurial behavior (Neubert, Dougherty, Park, & Griebel, 2014). Further, spiritual capital may take forms that discourage risk taking, which may hinder innovation or business growth (Ferguson, Dougherty, & Neubert, 2014). Or, spiritual capital may encourage conformity in behavior such that entrepreneurs might be hesitant to break from the *status quo* of product and service offerings or be reluctant to be successful if it separates them from others within their social group (Alquist, Ainsworth, & Baumeister, 2013). Fine-grained questions of specific beliefs and their potential differences in explaining associations of spiritual capital with both positive and negative outcomes are interesting areas for further inquiry.

Limitations and Future Research

In this research, we used the short form of Benson et al.'s (1993) FM measure to assess spiritual capital. This choice limits the findings of this research to the characteristics of this particular measure of spiritual capital. Although we believe that Benson et al.'s conceptualization of FM fits within our definition of spiritual capital, it does not encompass all that might be appropriate to measure. Given that theory and

2. Examining the size of this relationship in Models 2.2 and 2.4, a one-unit increase in spiritual capital is associated with a .223 change in the average total innovation. Similarly, there is a .196 change in average differential innovation for a unit change in spiritual capital.

3. A unit increase in spiritual capital is associated with a 39.7% (100 × 397) average increase in sales. Similarly, a one-unit increase in spiritual capital is associated with a 31.3% (100 × 313) increase in employment.

empirical research related to spiritual capital is in its infancy, future research can explore the utility of additional forms of spiritual capital on entrepreneurship as well as other aspects of economic activity. It would be helpful to advance research on variations of the forms of capital controlled for in this research. Education, business experience, and relevant background were assessed as forms of human capital (Becker, 1964), but particular skills related to entrepreneurship may have yielded different results. Self-efficacy and tenacity represent core constructs of psychological capital, but expanding the measure to include specific measures of hope and optimism may have strengthened the relationship of psychological capital with entrepreneurial outcomes. Additionally, social capital measures that reflect the quality of current relationships are likely to offer more explanatory power than the quantity of business connections measured in this research.

Additional limitations are worth noting. The cross-sectional nature of this study limits our ability to make strong causal claims from our analyses. It also prohibits us from assessing longitudinal effects such as firm growth or survival over time. Regarding our sample, we collected data from two different developing countries, but this still limits us in making broader conclusions about the relevance of our findings to all development contexts. Although we collected data through microcredit agencies, it would be useful to investigate characteristics of those agencies or the philosophical approach that guides their practices. Perhaps attention could be given to the extent to which these agencies and members of groups account for spiritual capital as a factor for group member selection—a topic that is understudied at this point. Another interesting extension that fits well with the theme of this article is to include agencies that are providing funding using different financial practices. For example, Islamic financing differs from the traditional interest-bearing loans addressed in this research by not charging interest but instead sharing the entrepreneur's profit or loss (for a review of Islamic finance, see Zaher & Hassan, 2001).

Conclusion

Financial capital by itself is insufficient to address poverty in subsistence economies. Other forms of capital play a significant role in the innovation and performance of entrepreneurial firms as well. This study demonstrated that spiritual capital, found to explain variance in innovation and business scalability beyond what was associated with measures of human, psychological, social, and financial forms of capital, may be an important resource in subsistence economies with institutional voids. Perhaps because secularism is an "implicit norm in organizational research" (Miller, 2015), spiritual capital is viewed as a "third rail" subject, leading to neglect. Our findings, along with parallel work in management, sociology, and economics, highlight the potentially important role of spiritual capital in business innovation and scalability in the development context. By addressing an understudied concept in the field, this study offers insights for development practice and illuminates opportunities for future research.

Appendix

Descriptive Statistics

	Domain							
	Kenya			Indonesia				
Variable	Mean	Min	Max	Mean	Min	Max	Format	Source
Outcomes								
Innovation—total	5.02	2.70	6.20	3.46	1.60	5.70	Likert scale (1 to 7)	Bradley et al. (2012)
Sales (log)	6.36	4.89	8.29	6.22	3.22	9.06	Log (reported)	Schumpeter (1934)
Employment (log)	1.11	0.00	3.04	1.15	0.00	4.62	Log (reported)	
Spiritual capital								
Faith maturity proxy[a]	6.42	5.40	7.00	5.56	4.00	7.00	Likert scale (1 to 7)	Bensen et al. (1993)
Psychological Capital								Bandura (1997)
Motivational state	6.00	4.40	6.80	5.52	3.60	7.00	Likert scale (1 to 7)	Chandler & Jansen (1992) Ruef (2002)
Social capital								
Strong ties	0.62	0	9	1.22	1	2	Reported #	
Weak ties	0.47	0	2	1.81	0	2	Reported #	
Network diversity	0.44	0.0	1.39	0.61	0.0	1.35	Entropy calc	Shannon & Weaver (1963)
Human capital								
Education level[a]	11.83	8.00	16.00	3.11	1	5	Reported #	
Business expertise	−0.12	−0.93	1.07	−0.36	−2	1	Categorical (3)	
Family business background	0.50	0.00	1.00	0.53	0	1	Binary	
Prior industry experience	0.38	0.00	1.00	0.42	0	1	Binary	
Financial capital								
Loan size USD	906.89	0.0	6667	1151.5	75	3000	Reported #	
Controls								
Competitive intensity	5.12	1	20	4.69	0	75	Reported #	
Business age	4.62	0	19	14.77	0	50	Reported #	
Legitimacy	0.77	0	1	0.23	0	1	Binary	
Age[a]	33.21	22	52	49.22	30	75	Reported #	
Sex (female=1)	0.50	0.00	1.00	1.00	1	1	Binary	

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