Examining the Factorial Validity of the Entrepreneurial Career Motives Scale: A Five-Nation Comparison

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Abstract
This study validates Shane et al.’s Entrepreneurial Career Motives Scale across nations. A total sample of 948 undergraduate and postgraduate students from five nations (China = 229, Hong Kong = 213, Holland = 136, United States = 155, and Ghana = 215) were recruited to complete a survey designed to measure their entrepreneurial motives and other related constructs. Confirmatory factor analysis supported the hypothesized four-factor structure, namely, perceived recognition, sense of independence, pursuit of learning, and perceived roles. Results of the measurement invariance comparisons satisfactorily established measurement equivalence of the scale across nations, language versions, and genders. Both convergent and discriminant validities were established as the motives were associated with different constructs in an expected manner. Interestingly, different patterns in the entrepreneurial career motives emerged across nations. Overall, our findings provide support for the construct validity of the Entrepreneurial Motives Scale. Implications for practice, limitations, and future research directions are discussed.

Keywords
entrepreneurship, motives, across nations, entrepreneurial intentions

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During times of rapid economic and technological development, many young individuals face the challenge of school to work transition (Savickas, 2013). Due to unemployment and constraints in the labor market, starting one’s own business is one of the possible alternatives to gaining full-time employment, especially among young adults (Kolvereid, 1996). Small firms and new venture creation provide meaningful employment opportunities and also ameliorate the problems of unemployment (Davidsson, 1991). As such, more and more individuals look for opportunities to create their own businesses and be self-employed (Asante & Affum-Osei, 2019). The trend of globalization has generally triggered the need for new businesses, which would enhance economic restructuring and growth. For some, entrepreneurship may be the panacea for innovation, job creation, and economic development (Newman et al., 2018). It is not surprising that, for example, 55.4% and 63.7% of young adults in Hong Kong and the United States, respectively, believe that entrepreneurship is a good career choice (Global Entrepreneurship Monitor [GEM], 2017). Similar figures were observed in Australia (54.2%), Cameroon (57.3%), and even higher in China (70.3%), Holland (77.9%), and Burkina Faso (80.6%) in the same survey. It is evident that many young adults around the world believe that entrepreneurship is a good career option.

To address the entrepreneurial perspectives of employability, previous research has explored several factors that may influence entrepreneurial activities including personal characteristics, family background, cultural dimensions, and social environments (Boyd & Vozikis, 1994; Hayton et al., 2002). Additionally, cognitive motivational factors (Boudreaux et al., 2019), broadly grouped into the four major factors of recognition, independence, learning/innovation, and role (Shane et al., 1991), are increasingly recognized as influencing young adults’ decisions to start entrepreneurial careers (Newman et al., 2018). However, relatively little is known about these constructs, nor have they been rigorously assessed across nations. For this reason, the aim of this contribution is to explore the psychometric characteristics of the Entrepreneurial Career Motives Scale and tests whether it is invariant across five nations (China, Hong Kong, Holland, United States, and Ghana) spanning four continents (Asia, Europe, North America, and Africa). By so doing, we employ robust multigroup confirmatory factor analysis (MGCFA) to establish measurement invariance (Sass, 2011). Moreover, the associations between the entrepreneurial career motives and some criterion variables (such as entrepreneurial self-efficacy) are tested. The results of the study are expected to expand our understanding concerning the applicability of the Entrepreneurial Career Motives Scale across different contexts.

**Previous Research and Theoretical Support**

Entrepreneurial intentions describe the state of mind that directs and guides the actions of individuals toward the development and implementation of business ideas (Boyd & Vozikis, 1994). Research posits that the reasons potential entrepreneurs give to establish their own businesses should have a significant influence on entrepreneurial intentions and actual entrepreneurial activities (Birley & Westhead, 1994). The growing relevance of research on motives for business start-ups stemmed from an earlier study by Scheinberg and MacMillan (1988) under the Society of Associated Researchers of International Entrepreneurship (SARIE). They identified six broad reasons explaining why people initiate new businesses across 11 countries, namely, need for approval, perceived instrumentality of wealth, degree of communitarianism, need for personal development, need for independence, and need for escape. Their comparisons across countries suggested that motives for entrepreneurship are not the same for the 11 countries surveyed. For instance, results showed that while U.S. participants scored lower on communitarianism but highest on the need for independence, those from Italy, Portugal, and China endorsed communitarianism higher than the need for independence. Using a similar methodology, Dubini (1989) identified seven reasons for business initiation, namely, achievement, philanthropy, status, materialism, escape, freedom, and role models, which were similar to the factors
described by Scheinberg and MacMillan (1988). In a related study under the SARIE project, Shane et al. (1991) identified four major reasons that motivated entrepreneurs to initiate businesses, which include independence, recognition, learning, and roles. They also concluded that there are differences in the motives for business initiation across countries (Great Britain, Norway, and New Zealand) and genders. For example, they found that entrepreneurs in Norway were more often than Great Britain to initiate businesses to learn or to be innovative. The above review indicates that there are many variations in the motives for venture creation across countries, suggesting further research across both Western and non-Western countries.

Regarding the measure of the entrepreneurial career motives, validity concerns have emerged because prior research has relied on individuals who have already started their businesses, ignoring potential and aspiring entrepreneurs (Shaver & Scott, 1991). These retrospective studies provide a limited understanding of whether such motivational factors are also important for potential entrepreneurs across countries (N. C. Carter et al., 2003). Moreover, entrepreneurial career motives are impacted by contexts (i.e., countries, cultures, and economic factors; Boudreaux et al., 2019; McGrath et al., 1992) and, therefore, must be verified across both industrialized and newly industrialized countries. Recent developments in cross-cultural research suggest that different countries may have different effects on individuals’ motivation and intentions to create their own businesses (Bouncken et al., 2009; Mueller & Thomas, 2001). Environments that restrict freedom of exploration because of high-level bureaucratic processes and constraints may impede the hard work needed for entrepreneurial innovation (Bandera et al., 2018; Shane, 1993). Thus, the absence of a validated scale is an obvious limitation when assessing motives for such careers among potential entrepreneurs, especially across nations. Therefore, for a robust measure to be developed, other important aspects of psychometric properties such as measurement invariance should be conducted through validation (Vandenberg & Lance, 2000).

Dimensions of entrepreneurial career motives relate to different factors such as entrepreneurial self-efficacy (Zampetakis et al., 2016), self-control (Baron et al., 2016), and materialism (Dubini, 1989). For example, Zhao et al. (2005) reported a positive relationship between learning/innovation and entrepreneurial self-efficacy. Career motives, such as autonomy and self-realization, were positively related to entrepreneurial intentions (Kolvereid & Isaksen, 2006). Given that those with high self-efficacy have stronger motives to engage in entrepreneurial activities across countries (Gorgievski et al., 2018), we expect stronger associations between entrepreneurial motives with entrepreneurial self-efficacy and self-control as evidence for convergent validity. With respect to discriminant validity, research reports that individuals who value materialistic goals experience a variety of problems including low levels of personal satisfaction and happiness (Twenge & Kasser, 2013). Such individuals are also less likely to be motivated to engage in proactive behavior relevant for long-term goals (e.g., establishing future businesses). Thus, material incentives (e.g., money) have seldom been regarded as key motives for people to engage in entrepreneurial activities (Amth et al., 2000). We, therefore, expect weak or no associations between entrepreneurial motives and materialism.

According to Shane et al. (1991), country differences exist in all four entrepreneurial motives. However, while some studies indicate that the motives for business initiation are similar in many countries (Bouncken et al., 2009; N. C. Carter et al., 2003), the strength of endorsement of entrepreneurial motives differ across countries (Kolvereid et al., 1993). Hence, as we expect measurement equivalence in the factor structure of the Entrepreneurial Career Motives Scale, we also envisage differences in the four entrepreneurial motives such that the Western nations (Holland and United States) will rate sense of independence and pursuit of learning more favorably (compared to non-Western countries) and non-Western nations (China, Hong Kong, and Ghana) will endorse perceived recognition and roles more favorably (compared to Western countries) in this study.

Entrepreneurial scholars have also indicated that the role of gender differences is an important consideration in motivation for business start-ups (Robb & Watson, 2012). For example, financial motives were found as a stronger reason for women to start their own businesses compared to men (Fischer
Male entrepreneurs were found to have a stronger motivation for learning/innovation to establish their businesses (N. C. Carter et al., 2003) and reported higher survival rates compared to females (N. M. Carter et al., 1997). Consequently, we expect measurement invariance across genders (i.e., males and females) but speculate that men will rate all the four entrepreneurial motives significantly higher than women across nations. Additionally, in many cross-cultural studies that utilize surveys, significant mean differences have emerged on the individual items due to differences in how participants from various countries and cultures interpret the items (Meredith & Teresi, 2006). We thus also examined the equivalence of the factorial structure of the Entrepreneurial Career Motives Scale across the two languages (i.e., English and Chinese) our participants used to answer the survey. If psychological measures function in the same way across languages, then any potential differences can be attributed to actual language group differences but not nonequivalent measures (Vandenberg & Lance, 2000).

The Current Study

This study validates the 14-item Entrepreneurial Career Motives Scale by Shane et al. (1991) under the SARIE project. Specifically, we explore (a) the psychometric properties of the Entrepreneurial Career Motives Scale among young adults across five nations; (b) the associations between the entrepreneurial career motives and other criterion variables including entrepreneurial self-efficacy, self-control, and materialism to establish convergent and discriminant validity of the scale; and (c) differences in the motives for new venture creation across nations. We expect that the Entrepreneurial Career Motives Scale would demonstrate satisfactory psychometric properties, allowing its application to more comprehensively in cross-national entrepreneurial research, especially among aspiring and potential entrepreneurs. From a practical perspective, the results of this study provide information for practitioners when designing relevant programs for potential entrepreneurs toward business start-ups and self-employment.

Method

Participants

Participants consisted of 948 university students from five nations (China = 229, Hong Kong = 213, Holland = 136, United States = 155, and Ghana = 215) across four continents (Asia, Europe, North America, and Africa). Of the total participants, 326 (34%) were males and 622 (66%) were females. Details of demographic characteristics are provided in Table 1.

Procedure

The questionnaire was translated from English into Chinese by bilingual graduate researchers and research assistants for the Mainland Chinese and Hong Kong participants. Five undergraduate student assistants were recruited to answer both the Chinese and English versions of the survey questionnaire. The Chinese version was then back-translated to ensure consistency by experienced bilingual researchers (Brislin, 1986). Collaborators from each data collection site then read the final version to ensure accuracy, consistency, and coverage of the survey instrument. Participants in Holland, United States, and Ghana completed the English version. The survey was completed over the Internet through Qualtrics Online Survey platform (Hong Kong and U.S. samples) and through paper and pencil administration (China, Holland, and Ghana samples). Collaborators from each site compensated each participant for his or her time with an approximate amount of US$5 (or souvenirs equivalent to the same amount), depending on the appropriate practice at each site. Participation was completely
voluntary with informed consent. The study was conducted with approval from the Survey and Behavioral Research Ethics Committee at the Chinese University of Hong Kong.

**Measures**

*Entrepreneurial Career Motives Scale.* We used the entrepreneurial career motives measure (Shane et al., 1991). Five items were used to capture *perceived recognition* (i.e., the intentions to achieve a higher position for oneself for gaining status and approval from friends, families, and members of the community). An example is “I plan to start my own business to achieve a higher position for myself in society.” Three items measured *sense of independence* (i.e., the freedom to control one’s own time and have the flexibility for personal choices and family life). A sample is “I plan to start my own business to control my own time.” *Pursuit of learning/innovation* (i.e., individuals’ desire to develop an idea of a product or service and promote innovation) was captured by 3 items. An example is “I plan to start my own business to develop an idea for a product.” *Perceived roles* (i.e., a person’s desire to follow family tradition or exemplify a person one admires) were measured by 3 items. An example is “I plan to start my own business to continue a family tradition.” The participants indicated the extent to which the reasons are important to them in establishing their own businesses in the next 5–10 years on a 5-point Likert-type scale (ranging from 1 = *a very small extent* to 5 = *a very large extent*). The scale has achieved acceptable reliability coefficients in previous research: *perceived recognition* (α = .60), *sense of independence* (α = .58), *pursuit of learning/innovation* (α = .63), and *perceived roles* (α = .73; see N. C. Carter et al., 2003). For this study, the reliability coefficients were *perceived recognition* (α = .83), *sense of independence* (α = .86), *pursuit of learning/innovation* (α = .81), and *perceived roles* (α = .76).

### Table 1. Demographic Information of Respondents by Nations.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>China N (%)</th>
<th>Hong Kong N (%)</th>
<th>Holland N (%)</th>
<th>United States N (%)</th>
<th>Ghana N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>84 (36.7)</td>
<td>63 (29.3)</td>
<td>63 (46.3)</td>
<td>43 (27.7)</td>
<td>73 (34)</td>
</tr>
<tr>
<td>Females</td>
<td>145 (63.3)</td>
<td>150 (70.7)</td>
<td>73 (53.7)</td>
<td>112 (72.3)</td>
<td>142 (66)</td>
</tr>
<tr>
<td>Total</td>
<td>229 (100)</td>
<td>213 (100)</td>
<td>136 (100)</td>
<td>155 (100)</td>
<td>215 (100)</td>
</tr>
<tr>
<td>Mean/SD of age</td>
<td>21.5/0.83</td>
<td>22.7/3.42</td>
<td>23.91/3.57</td>
<td>21.0/1.20</td>
<td>22.5/1.60</td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor</td>
<td>229 (100)</td>
<td>160 (75.1)</td>
<td>21 (15.4)</td>
<td>155 (100)</td>
<td>215 (100)</td>
</tr>
<tr>
<td>Master</td>
<td>0 (0)</td>
<td>47 (22.1)</td>
<td>113 (83.1)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>PhD</td>
<td>0 (0)</td>
<td>6 (2.8)</td>
<td>2 (1.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Year of study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>0 (0)</td>
<td>28 (13.1)</td>
<td>21 (15.4)</td>
<td>134 (86.5)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Second year</td>
<td>0 (0)</td>
<td>12 (5.6)</td>
<td>113 (83.1)</td>
<td>16 (10.3)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Third year</td>
<td>0 (0)</td>
<td>7 (3.3)</td>
<td>2 (1.5)</td>
<td>5 (3.2)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Fourth year</td>
<td>229 (100)</td>
<td>166 (77.9)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>215 (100)</td>
</tr>
<tr>
<td>Language versions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>229 (100)</td>
<td>213 (100)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>English</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>136 (100)</td>
<td>155 (100)</td>
<td>215 (100)</td>
</tr>
<tr>
<td>University residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On campus</td>
<td>211 (92.1)</td>
<td>64 (30.0)</td>
<td>28 (20.6)</td>
<td>138 (89.0)</td>
<td>182 (84.7)</td>
</tr>
<tr>
<td>Off campus</td>
<td>12 (5.2)</td>
<td>149 (70.0)</td>
<td>108 (79.4)</td>
<td>17 (11.0)</td>
<td>33 (15.3)</td>
</tr>
</tbody>
</table>

Note. N = 948. The total number of respondents in some category may not equal because some respondents did not answer all the questions in the survey.
Entrepreneurial self-efficacy. Self-efficacy was measured using the 19 items developed by Mcgee et al. (2009). Participants indicated how confident they were in engaging in specific entrepreneurial activities to start their own businesses in the next 5–10 years on a 5-point Likert-type scale ranging from 1 (very little) to 5 (very much) confident. An example is “brainstorming (coming up with) a new idea for a product or service.” Previous research has reported an acceptable \( \alpha \) coefficient (e.g., \( \alpha = .89 \); Baron et al., 2016). We derived an \( \alpha \) value of .93 in this study. Construct validity of the Entrepreneurial Self-Efficacy Scale was supported by its positive association with variables in this study. A similar pattern of association between self-efficacy and entrepreneurial intentions was reported among a student sample in the United States (Zhao et al., 2005).

Self-control. Self-control was assessed using the 13 items validated by Tangney et al. (2004; \( \alpha = .78 \) in their study). Participants answered the self-control items using a 5-point Likert-type scale (ranging from 1 = not at all to 5 = very much). An example is “I refuse things that are bad for me.” We obtained a reliability coefficient of .81. Construct validity of the Self-Control Scale was supported by its positive association with variables in this study. A similar pattern of association between self-control and venture performance was reported among a sample of entrepreneurs in the United States (Baron et al., 2016).

Materialism. We assessed materialism with 15 of the original 18-item Values-Oriented Materialism Scale (Richins & Dawson, 1992). Pretests revealed that participants, in particular, Chinese, had difficulties in responding to items related to buying luxury goods. As a result, 3 items (i.e., “I admire people who own expensive homes, cars, and clothes,” “I enjoy spending money on things that aren’t practical,” and “Buying things gives me a lot of pleasure”) were excluded. Similar difficulties were reported by Chan et al. (2006). Participants responded on a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree). An example is “The things I own say a lot about how well I’m doing in life.” Chan et al. (2006) reported a coefficient \( \alpha \) of .66 among a student sample in Beijing, China. We obtained an \( \alpha \) coefficient of .78. Construct validity of Materialism Scale was supported by the positive association of the scale scores with insecurity among a student sample in the United States (Twenge & Kasser, 2013).

Data Preparation, Principal Components Analysis (PCA), and Analytical Technique

Missing data and PCA. Prior to the analyses, issues related to missing data and PCA were examined. First, following Allison’s (2003) suggestions, we performed data cleaning by deleting missing at random cases (5% and above: a participant from the Holland sample) and those with small missing cases (less than 5%) were imputed with the mean value of that variable (Schlomer et al., 2010). Second, prior to the CFA, we performed PCA with varimax rotation to ascertain the structure of the questionnaire items. PCA results revealed four factor-solution, which accounted for 71.39% of the total variance. The Kaiser–Meyer–Olkin value was .89 and Bartlett’s test of sphericity was significant, \( \chi^2(91) = 6,690.60, p < .001 \), fulfilling the criteria for conducting PCA. The results showed that the items loaded on their respective factors. Specifically, 5 items loaded on perceived recognition, 3 items loaded on sense of independence, 3 items loaded on pursuit of learning/innovation, and 3 on perceived roles.

Analytical Technique

Analyses were performed using the Statistical Package for Social Sciences (IBM SPSS [Version 24.0], 2016) and AMOS Statistical Package Version 21 (Arbuckle, 2012). First, we conducted descriptive analyses across countries. Second, we performed CFA, with maximum likelihood estimation (MLE) to examine whether the four-factor structure fits the data by group and for the whole sample. The goodness-of-fit of each model was evaluated with multiple fit indices of chi-square (\( \chi^2 \)) statistics,
Tucker–Lewis index (TLI), comparative fit index (CFI), root mean square error approximation (RMSEA), and standardized root mean square residual (SRMR). We used combined cutoff fit indices such that models with CFI ≥ .90, TLI ≥ .90, RMSEA ≤ .08, and SRMR ≤ .10 were considered to have an acceptable fit (see Hu & Bentler, 1999).

Next, we assessed the measurement equivalence of the models by performing measurement invariance tests across nations (China, Hong Kong, Holland, United States, and Ghana), language versions (Chinese vs. English), and genders (male vs. female). Particularly, we tested three types of measurement invariance (Cheung & Rensvold, 2002): configural invariance where all parameters were estimated without constraints across the five groups simultaneously. We adopted the “forward approach” (i.e., sequentially adding more model constraints; Sass, 2011, p. 352) to test metric invariance (i.e., adding constraints to the factor loadings) and scalar invariance (i.e., adding constraints to the intercepts or thresholds). Given that $\chi^2$ statistics have the potential limitation of sensitivity to large sample size, approximate fit statistics (i.e., $\Delta$CFI, $\Delta$RMSEA, and $\Delta$SRMR) are considered as more appropriate to evaluate the differences in models because they are least affected by large sample size (Sass, 2011). Therefore, we considered absolute value of $\Delta$CFI < .01, $\Delta$RMSEA < .015, and $\Delta$SRMR < .01, as revealing some level of equivalence between groups (Cheung & Rensvold, 2002).

Results

Internal Consistency

To ascertain the reliability and validity of the scale, Cronbach’s $\alpha$ reliabilities and average variance explained were computed. The Cronbach’s $\alpha$ coefficients of the subscales ranged between .79 and .86 for recognition, .81 and .86 for independence, .74 and .83 for learning, and .65 and 76 for roles (see Table 2). Reliability and validity of the Entrepreneurial Career Motives Scale were acceptable across nations and comparable to results reported in previous cross-cultural research (Bouncken et al., 2009). Additionally, reliability coefficients and correlations of other measures (i.e., self-efficacy, self-control, and materialism) used in this study are also included (see Table 3). Specifically, the $\alpha$ coefficients range from .76 to .86 and the construct validities were supported by the associations among the variables.

CFA

We performed a series of CFAs to test the fit of the four-factor structure Entrepreneurial Career Motives Scale using MLE. Specifically, CFAs were conducted separately for each of the nations and then for the overall sample. The CFA results showed acceptable fits for the 5 samples and overall sample, $\chi^2(71) (N = 948) = 483.648$, $\chi^2/df = 6.81$, CFI = .94, TLI = .92, RMSEA = .08, SRMR = .05 (see Table 4 for the detail of the goodness-of-fit statistics). In addition, the default four-factor model was compared to other alternative models. Overall, the four-factor model showed a better fit compared to the three-factor model (i.e., recognition, independence combined), two-factor model (i.e., recognition, independence, and learning combined), and single-factor model. The standardized factor loadings suggest that all the items corresponding to each factor were indeed indicators of the entrepreneurial career motives constructs (see Table 2).

Measurement Invariance Across Nations, Language Versions, and Genders

Based on the total sample, we conducted measurement invariance tests to examine the equivalence of the measurement model for the different groups, that is, nations, language versions, and genders (see Table 5). With regard to nations, the configural invariance model revealed satisfactory fit, $\chi^2(335) (N = 948) = 889.610$, $\chi^2/df = 2.51$, CFI = .90, TLI = .88, RMSEA = .04, SRMR = .08, guaranteeing
similar factor structure across nations. However, the metric invariance results showed a decrease in the model fit. When we compared the configural invariance and the metric invariance models, the results showed a significant $\chi^2$ change test, $\Delta\chi^2(56) = 179.19$, $p < .05$. As indicated earlier, we used

Table 2. CFA Factor Loadings, Reliability, and Validity of the Entrepreneurial Career Motives Scale.

<table>
<thead>
<tr>
<th>Motives</th>
<th>Whole Sample</th>
<th>China</th>
<th>Hong Kong</th>
<th>Holland</th>
<th>United States</th>
<th>Ghana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived recognition</td>
<td>FL</td>
<td>$\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
</tr>
<tr>
<td>To achieve a higher position for myself in society</td>
<td>.80</td>
<td>.81</td>
<td>.74</td>
<td>.77</td>
<td>.76</td>
<td>.73</td>
</tr>
<tr>
<td>To have more influence in my community</td>
<td>.66</td>
<td>.83</td>
<td>.67</td>
<td>.46</td>
<td>.53</td>
<td>.57</td>
</tr>
<tr>
<td>To be respected by friends</td>
<td>.81</td>
<td>.77</td>
<td>.76</td>
<td>.72</td>
<td>.71</td>
<td>.76</td>
</tr>
<tr>
<td>To achieve something and get recognition for it</td>
<td>.67</td>
<td>.53</td>
<td>.56</td>
<td>.48</td>
<td>.73</td>
<td>.64</td>
</tr>
<tr>
<td>To increase the status and prestige of my family</td>
<td>.80</td>
<td>.65</td>
<td>.74</td>
<td>.82</td>
<td>.70</td>
<td>.71</td>
</tr>
<tr>
<td>Sense of independence</td>
<td>FL</td>
<td>$\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
</tr>
<tr>
<td>To control my own time</td>
<td>.85</td>
<td>.86</td>
<td>.78</td>
<td>.83</td>
<td>.79</td>
<td>.79</td>
</tr>
<tr>
<td>To have greater flexibility for my personal and family life</td>
<td>.87</td>
<td>.87</td>
<td>.87</td>
<td>.83</td>
<td>.89</td>
<td>.76</td>
</tr>
<tr>
<td>To have considerable freedom to adapt my own approach to work</td>
<td>.71</td>
<td>.68</td>
<td>.79</td>
<td>.78</td>
<td>.54</td>
<td>.74</td>
</tr>
<tr>
<td>Pursuit of learning/innovation</td>
<td>FL</td>
<td>$\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
</tr>
<tr>
<td>To develop an idea for a product</td>
<td>.83</td>
<td>.77</td>
<td>.80</td>
<td>.90</td>
<td>.79</td>
<td>.77</td>
</tr>
<tr>
<td>To be innovative and in the forefront of new technology</td>
<td>.88</td>
<td>.86</td>
<td>.94</td>
<td>.77</td>
<td>.89</td>
<td>.77</td>
</tr>
<tr>
<td>To continue learning</td>
<td>.60</td>
<td>.73</td>
<td>.44</td>
<td>.60</td>
<td>.54</td>
<td>.49</td>
</tr>
<tr>
<td>Perceived roles</td>
<td>FL</td>
<td>$\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
<td>FL $\alpha$/AVE</td>
</tr>
<tr>
<td>To continue a family tradition</td>
<td>.67</td>
<td>.52</td>
<td>.65</td>
<td>.75</td>
<td>.70</td>
<td>.56</td>
</tr>
<tr>
<td>To have more influence in my family</td>
<td>.89</td>
<td>.80</td>
<td>.90</td>
<td>.87</td>
<td>.91</td>
<td>.86</td>
</tr>
<tr>
<td>To follow the example of a person I admire</td>
<td>.58</td>
<td>.44</td>
<td>.55</td>
<td>.45</td>
<td>.49</td>
<td>.51</td>
</tr>
</tbody>
</table>

Note. FL = factor loadings; $\alpha$ = Cronbach's $\alpha$; AVE = average variance explained.
approximate fit statistics to evaluate the invariance test (Sass, 2011). Consistently, the results of 
\(\Delta RMSEA\) and \(\Delta SRMR\) were lower than .01 suggesting a negligible difference between the models.

We conducted scalar invariance tests and compared the results with the metric invariance model. Similarly, the results showed significant \(\Delta \chi^2\) change, but the \(\Delta RMSEA\) and \(\Delta SRMR\) were below .01, guaranteeing that the model did not significantly differ across nations.

Concerning language versions, the configural invariance showed a good fit, \(\chi^2(142) = 559.727, \chi^2/df = 3.941, CFI = .94, TLI = .92, RMSEA = .06, SRMR = .07\), suggesting configurational equivalence between the linguistic versions. Similar fit indices results were obtained for the metric invariance with CFI = .93, TLI = .91, RMSEA = .06, and \(\chi^2/df = 4.14\). Regarding the difference between the configural and the metric models, the \(\chi^2\) change test was significant, \(\Delta \chi^2(14) = 86.69, p < .05\). Ultimately, measurement invariance was achieved as the approximate fit indices, \(\Delta CFI\), \(\Delta RMSEA\), and \(\Delta SRMR\) satisfied the threshold. The model goodness-of-fit indices were reduced when additional constraints were imposed for the scalar invariance test CFI = .87, TLI = .86, RMSEA = .07, SRMR = .09, and \(\chi^2/df = 6.21\). Whereas the \(\chi^2\) change test was significant, \(\Delta \chi^2(14) = 409.24, p < .05\), when comparing the metric and scalar invariance models, the \(\Delta CFI\), \(\Delta RMSEA\), and \(\Delta SRMR\) provided reasonably acceptable results based on the previous research recommendations (Sass, 2011).

With reference to gender, the unconstrained model (i.e., configural model) showed an acceptable fit, \(\chi^2(142) = 576.679, \chi^2/df = 4.06, CFI = .94, TLI = .92, RMSEA = .06, SRMR = .07\). The constrained measurement model (i.e., metric invariance) showed comparable results.
The multigroup model comparison between the configural and the metric invariance showed $\Delta \chi^2(14) = 1,078, p > .05$, reflecting configural and metric invariance. Also, the fit indices for the scalar invariance exhibited satisfactory fit, $\chi^2(170) (N = 948) = 604.846, \chi^2/df = 3.55, CFI = .94, TLI = .93, RMSEA = .05, SRMR = .07$. In fact, the comparison between the metric and the scalar models revealed nonsignificant change in $\chi^2$ statistics, $\Delta \chi^2(14) = 17.391, p = .236$. Overall, the results provide support for measurement invariance of the Entrepreneurial Career Motives Scale across nations, language versions, and genders.

**Convergent and Discriminant Validity**

Results of the correlation analysis among entrepreneurial career motives, entrepreneurial self-efficacy, self-control, and materialism are presented in Table 3. The results revealed significant, positive, and moderate intercorrelations among the four subscales ($r$ ranged between .42 and .63), with the highest correlation between perceived recognition and perceived roles ($r = .63$). As shown in Table 3, all four factors of the Entrepreneurial Career Motives Scale were correlated positively and strongly with
### Table 5. Fit Indices for Invariance Test Across Groups.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>p Value</th>
<th>$\chi^2$/df</th>
<th>RMSEA</th>
<th>SRMR</th>
<th>TLI</th>
<th>CFI</th>
<th>AIC</th>
<th>$\Delta \chi^2$</th>
<th>$\Delta$RMSEA</th>
<th>$\Delta$SRMR</th>
<th>$\Delta$CFI</th>
<th>Comparison</th>
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</thead>
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<tr>
<td><strong>Country</strong></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Configural</td>
<td>889.610</td>
<td>355</td>
<td>.000</td>
<td>2.51</td>
<td>0.40</td>
<td>.079</td>
<td>.876</td>
<td>.903</td>
<td>1,296.800</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>1,068.800</td>
<td>411</td>
<td>.000</td>
<td>2.60</td>
<td>0.41</td>
<td>.085</td>
<td>.868</td>
<td>.881</td>
<td>1,229.610</td>
<td>179.190***</td>
<td>-.001</td>
<td>-.006</td>
<td>.022</td>
<td>Metric vs. configural</td>
</tr>
<tr>
<td>Scalar</td>
<td>2,010.271</td>
<td>467</td>
<td>.000</td>
<td>4.30</td>
<td>0.59</td>
<td>1.007</td>
<td>.728</td>
<td>.721</td>
<td>2,266.271</td>
<td>941.471***</td>
<td>-.018</td>
<td>-.015</td>
<td>.160</td>
<td>Scalar vs. metric</td>
</tr>
<tr>
<td><strong>Language versions</strong></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Configural</td>
<td>559.727</td>
<td>142</td>
<td>.000</td>
<td>3.94</td>
<td>0.56</td>
<td>.072</td>
<td>.919</td>
<td>.937</td>
<td>695.727</td>
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<td>—</td>
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<tr>
<td>Metric</td>
<td>646.420</td>
<td>156</td>
<td>.000</td>
<td>4.14</td>
<td>0.58</td>
<td>.099</td>
<td>.914</td>
<td>.926</td>
<td>754.420</td>
<td>86.693***</td>
<td>-.002</td>
<td>-.027</td>
<td>.011</td>
<td>Metric vs. configural</td>
</tr>
<tr>
<td>Scalar</td>
<td>1,055.657</td>
<td>170</td>
<td>.000</td>
<td>6.21</td>
<td>0.74</td>
<td>.096</td>
<td>.857</td>
<td>.867</td>
<td>1,191.657</td>
<td>409.237**</td>
<td>-.002</td>
<td>.003</td>
<td>.059</td>
<td>Scalar vs. metric</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Configural</td>
<td>576.679</td>
<td>142</td>
<td>.000</td>
<td>4.06</td>
<td>0.57</td>
<td>.065</td>
<td>.917</td>
<td>.935</td>
<td>712.679</td>
<td>—</td>
<td>—</td>
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<td>—</td>
<td></td>
</tr>
<tr>
<td>Metric</td>
<td>587.455</td>
<td>156</td>
<td>.000</td>
<td>3.77</td>
<td>0.54</td>
<td>.067</td>
<td>.925</td>
<td>.936</td>
<td>695.455</td>
<td>10.776</td>
<td>.003</td>
<td>-.002</td>
<td>-.001</td>
<td>Metric vs. configural</td>
</tr>
<tr>
<td>Scalar</td>
<td>604.846</td>
<td>170</td>
<td>.000</td>
<td>3.55</td>
<td>0.52</td>
<td>.067</td>
<td>.930</td>
<td>.935</td>
<td>740.846</td>
<td>17.391</td>
<td>-.003</td>
<td>.000</td>
<td>.003</td>
<td>Scalar vs. Metric</td>
</tr>
</tbody>
</table>

Note. Countries (1 = China, 2 = Hong Kong, 3 = Holland, 4 = United States, 5 = Ghana), gender (1 = male, 2 = female), and language versions (1 = Chinese, 2 = English). TLI = Tucker–Lewis index; CFI = comparative fit index; RMSEA = root mean square error; SRMR = standardized root mean square residual approximation; AIC = Akaike information criterion; vs. = versus. 

***p < .001.
entrepreneurial self-efficacy (r ranged from .39 to .54) as evidence for convergent validity. However, the correlations between entrepreneurial motives and self-control were somewhat inconsistent. Specifically, while the relation between perceived recognition and self-control was not significant (r = .04), moderate correlations were found between self-control and the other three subscales (r ranging between .08 and .12), providing some support for convergent validity with respect to self-control. In terms of discriminant validity, materialism was not related to pursuit of learning, as expected, but was found to be associated with perceived recognition (r = .21), sense of independence (r = .08), and perceived roles (r = .17), but with all smaller magnitudes of association compared to those of entrepreneurial self-efficacy. Taken together, these results generally support convergent and discriminant validities of the Entrepreneurial Career Motives Scale.

Mean Differences in Entrepreneurial Career Motives for Start-Ups Across Nations

In addition to validating the scale, we explored potential differences in mean ratings of the entrepreneurial motives across the five nations. Multivariate analysis of variance (ANOVA) revealed statistically significant differences across nations, Wilk’s Λ = .629, F(16, 2857) = 29.28, p < .001, and nation–gender interactions, Wilk’s Λ = .972, F(16, 2857) = 1.67, p = .04, on the combined career motives for venture start-ups. There was no significant main effect for gender on the career motives. Furthermore, we tested the significance of the differences using a Bonferroni-adjusted α level of p = .013 to curtail family-wise error. ANOVA results showed no significant effect of nation–gender interactions using the Bonferroni-adjusted α level of .013. Further inspection of the ANOVA results showed significant differences in the career motives across nations.

Follow-up analyses were performed to identify the specific differences among the five nations (see Table 3). A post hoc t test revealed that Ghanaian participants appeared to rate themselves somewhat higher than the other nations did on the motives (perceived recognition M = 4.14, sense of independence M = 4.44, pursuit of learning M = 4.09, and perceived roles M = 3.42). Chinese participants put more emphasis on perceived recognition (M = 3.32) relative to Hong Kong (M = 3.01), Holland (M = 2.87), and U.S. (M = 2.76) participants. There were no significant differences on sense of independence among Holland (M = 3.98), China (M = 3.97), and Hong Kong (M = 3.73), but the U.S. sample rated the factor significantly lower than Holland (M = 3.50). Participants from Holland reported a higher score in pursuit of learning (M = 3.63) than their counterparts in Hong Kong (M = 3.09) and the United States (M = 3.29), yet similar to those in China (M = 3.38). Finally, there was no significant difference between Holland (M = 1.98) and the United States (M = 1.76) participants on perceived roles. China (M = 2.16) and Hong Kong (M = 2.42) participants rated themselves similarly, yet, more favorably than the other nations except for the Ghanaian counterparts.

Discussion

This study validated the four-factor structure of the Entrepreneurial Career Motives Scale (Shane et al., 1991) and its relations with some criterion variables. Our investigation utilized samples from five nations (China, Hong Kong, Holland, United States, and Ghana) across four continents (Asia, Europe, North America, and Africa), which allowed comparisons among these nations. We demonstrated that the entrepreneurial career motives for business start-ups can be represented by four dimensions. Consistent support was found for the validity and measurement equivalence of the Entrepreneurial Career Motives Scale across nations, genders, and language versions. This study not only contributes to the validity and reliability of the scale but also supports its use for entrepreneurship research across nations.

In general, our results strongly support the psychometric characteristic of the Entrepreneurial Career Motives Scale (Shane et al., 1991). Results from the CFA verified that individuals differentiate
between motives including recognition, independence, learning/innovation, and roles in terms of their entrepreneurial career choices. In line with prior studies (N. C. Carter et al., 2003; Shane et al., 1991), our results contribute to the cross-national meaning and interpretations of the Entrepreneurial Career Motives Scale. Furthermore, the Entrepreneurial Motives Scale showed acceptable correlations among the dimensions and the criterion variables, thus confirming and extending the findings of previous research (N. C. Carter et al., 2003; Dubini, 1989). Specifically, the correlational analysis showed that the relationship between the Entrepreneurial Motives Scale and the criterion variables (e.g., self-efficacy) corroborated previous study (Dubini, 1989; Zhao et al., 2005). The trend of the correlation results confirmed our speculations that individuals who have higher entrepreneurial motives are more likely to exhibit stronger self-efficacy in their entrepreneurial career decisions (Zhao et al., 2005). Conversely, weak or no correlations were found between the motives and materialism. For example, the correlation between pursuit of learning and materialism was not significant. That is, people who pursue learning goals as a reason to engage in entrepreneurial activities tend not to be motivated by material incentives such as money (Dubini, 1989). The results suggest that entrepreneurial motives can be discussed in relation to other criterion variables including entrepreneurial self-efficacy. In general, the findings support convergent and discriminant validity for the four-factor model of the Entrepreneurial Career Motives Scale.

Notable differences in entrepreneurial motives across nations were observed. In particular, perceived recognition, sense of independence, pursuit of learning, perceived roles differed among the five nations, suggesting entrepreneurial career motives appeared to be influenced differently by national contexts. This may in part be due to differences in economic situations and cultural traditions in different nations, which influence people’s career choices (Shane, 1992, 1993). For instance, Ghanaian potential entrepreneurs rated most of the entrepreneurial career motives more favorably relative to other countries. Such a result may be due to the high level of unemployment in the country, which has predisposed young adults to pursue self-employment (Affum-Osei et al., 2019; Asante & Affum-Osei, 2019). This finding resonates with the GEM study (GEM, 2018), which highlights that over 70% of people in African countries are motivated and have positive perceptions toward establishing their own businesses.

It was further revealed that our participants from non-Western nations rated motive for recognition and roles significantly higher than those from Western nations. This result is consistent with previous research, which found that nations such as China-endorsed recognition for business start-ups more favorably compared to the United States (Scheinberg & MacMillan, 1988), thus highlighting differences in entrepreneurial motives across nations (Mueller & Thomas, 2001). Although there were no differences between Holland, China, and Hong Kong on sense of independence, participants in Holland scored significantly higher on it than participants in the United States. In addition, pursuit of learning/innovation was a more important motive for potential entrepreneurs in Holland relative to those in Hong Kong, providing support for the tendency toward proactivity and learning among Western participants (Tiessen, 1997).

While some patterns of differences in the career motives were consistent with our predictions, a number of differences involving Western nations were also opposed to our predictions. For instance, participants from Ghana and China rated independence motives more favorably than those in the United States. These findings could be due to the reference group effect (Heine et al., 2002) or confirm the assertion that nations are becoming more diverse (Oyserman et al., 2002). Other variables including education and globalization can influence people’s levels of beliefs and behaviors which could facilitate acculturation in most nations (e.g., individualism–collectivism: Oyserman et al., 2002).

Historically, nations such as the United States have been at the forefront of innovation and business start-ups (Shane, 1993). Nonetheless, globalization and industrialization have aided nations such as China to more robustly seek new business venturing (GEM, 2017). Perhaps, the pattern of motivation for business start-ups is becoming more uniform among both Western and non-
Western nations in recent years. In addition, individual-level variables can also play a significant role in moderating the impact of contextual factors (e.g., a country’s cultural background) on motivation for business creation (Thomas & Mueller, 2000). This is because entrepreneurship is a goal-directed behavior, which involves planning, goal-setting, intentions, and conscious efforts to take actions (Baron et al., 2016). For example, individual factor variables including openness and self-enhancement were found to influence entrepreneurial career intentions regardless of the contextual influences (Gorgievski et al., 2018).

Interestingly, our results contradict other studies that revealed gender differences in entrepreneurial motives with males showing a higher inclination toward venture creation (Fischer et al., 1993). In this study, male and female participants were not different in their motive ratings for new business creation and the gender–nation interaction was also not statistically significant. Our results corroborated previous studies that found no significant gender differences in entrepreneurial motives (N. C. Carter et al., 2003; Shane et al., 1991). For instance, N. C. Carter et al. (2003) found no significant differences between men and women on self-realization, roles, recognition, and independence as reasons for business start-ups. It appears that gender may not be as prominent as nation for differentiating motives for business creation among potential entrepreneurs.

**Theoretical and Practical Implications**

Entrepreneurship remains an important driving force for job creation and national development (Sutter et al., 2019). Undoubtedly, this study has implications for theory, practice, and career development. First, we do not rely on retrospective reports. Instead, we focus on entrepreneurial career motives measured among potential entrepreneurs across different nations, addressing the concerns of retrospective bias in the literature. Second, the establishment of a reliable and valid measure will not only help scholars conduct research using the scale but also assist career development practitioners to assess potential entrepreneurs’ motivation for new venture creation toward self-employment. For instance, information on the motives could help practitioners to determine, which of the motives are particularly important for potential entrepreneurs across nations. In addition, policy makers should carefully consider the benefits of these motivational factors by integrating them into the design of career development frameworks to facilitate young adults’ innovations and entrepreneurial intentions. Such cognitive-motivational factors could be enhanced through entrepreneurship mentoring programs (Cadenas et al., 2018; St-Jean & Mathieu, 2015). Finally, based on the findings of the mean differences in the entrepreneurial motives, relevant comparisons of entrepreneurial programs across nations could provide significant benefits for young adults in the respective nations.

**Limitations and Future Research Directions**

First, our study, like others, relied solely on self-report measures. Future studies should corroborate self-report measures with other behavioral indicators of entrepreneurial motives for a fuller picture. Second, this study did not include oft-used cross-cultural variables such as individualism–collectivism but sampled participants across nations. Further research should explore how cultural variables might account for differences among aspiring and potential entrepreneurs. Third, participants in this study were highly educated (i.e., university students). Additional research is needed to broaden the range of education in potential entrepreneurs to better understand the generality of this phenomenon. Fourth, we should acknowledge that the uneven sample sizes among the nations could be a potential limitation to our invariance test. However, our sample sizes generally satisfied the “rule-of-thumb” for conducting CFA (Bollen, 1989). Lastly, this study focused on five nations (i.e., China, Hong Kong, Holland, United States, and Ghana), each with unique characteristics. Therefore, caution must be taken when interpreting and generalizing the findings to other nations.
In conclusion, given the important role of business start-ups in global economies, a better understanding of entrepreneurial motives is critical and urgent. To this end, a series of psychologically rigorous tests of young adults’ reasons for career choices facilitate both research and interventions of entrepreneurial intentions. Our study has established the cross-national validity of the 14-item Entrepreneurial Career Motives Scale in the hope of advancing our understanding of entrepreneurship across nations.

**Declaration of Conflicting Interests**

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