University spin-offs creation in the Latin American region
An exploratory study
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Abstract

Purpose – This paper aims to empirically explore the influence that different factors have on the creation of university spin-offs.
Design/methodology/approach – This is an exploratory study that uses a multilevel design. The study follows a purposive sampling method where data are gathered from a variety of sources. The hypotheses are tested with a sample of 52 universities from the Latin American region using multiple hierarchical regression analysis.
Findings – The results indicate that entrepreneurial orientation, incubators or entrepreneurship support programs and goods market efficiency are the factors that positively influence the creation of university spin-offs.
Research limitations/implications – The results of this study should be observed in light of some limitations. The sample size is an important factor, as a bigger sample could allow for examination of cross-institutional variation in the context of different countries. In addition, the lack of records or public databases makes it difficult to incorporate more information on spin-offs creation, including features or firm performance.
Originality/value – This study is the first to empirically explore the university spin-offs creation phenomenon in the Latin American region. Hence, it contributes to university entrepreneurship literature, specifically to better understand this phenomenon from a more holistic perspective across different levels of analysis at the same time that it incorporates previous proposals to explain entrepreneurial orientation at universities.

Keywords
Entrepreneurial orientation, University entrepreneurship, Entrepreneurial university, University spin-offs

Paper type
Research paper

Introduction

At the heart of university entrepreneurship literature lies the concept of an entrepreneurial university, which views entrepreneurial activity as a step in the natural evolution of a university system that emphasizes economic development in addition to the more traditional mandates of education and research (Etzkowitz, 2003). According to Clark (2004), an entrepreneurial university can generate a focused, strategic direction, both in formulating academic goals and in translating the knowledge produced within the university into economic and social utility.

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The literature on entrepreneurial university demonstrates that it is a relevant topic within the field of entrepreneurship, although the literature is fragmented (Cunningham and Link, 2015). Most of the studies in this research stream have attempted to reveal different internal elements that inhibit or enhance the commercialization activity of the university (Rothaermel et al., 2007). However, at the same time, universities are embedded in a larger environmental context, and the feedback from the external environment continuously influences the way in which the universities participate in entrepreneurial activities (Sternberg, 2014).

Among the instruments available for universities, new firm creation (i.e. university spin-offs) appears to be one of the most important mechanisms to measure their entrepreneurial activity (Audretsch, 2014; Avnimelech and Feldman, 2015; Di Gregorio and Shane, 2003; Rasmussen et al., 2011). University spin-offs are important to the commercialization of academic knowledge (Rothaermel et al., 2007) and are presumed to be an important mechanism for regional economic development (Astebro and Bazzazian, 2011; Hayter, 2015).

As such, this study focuses on the effect of both external environment and the academic internal environment on the rate at which spin-offs are created to exploit university knowledge, technology or research results. This study can clearly benefit from a more holistic perspective across different levels of analysis (Hitt et al., 2007). Hence, the objective of this study is to explore the multilevel interactions of different factors involved in an entrepreneurial university. It is expected that the results can aid in moving beyond understanding the individual pieces of the entrepreneurial university puzzle toward a more holistic understanding of this complex and multifaceted process. If this is possible, this study will make two main contributions to the field of entrepreneurship.

First, this study contributes by investigating to what extent previous proposals are suitable in explaining the entrepreneurial posture of universities (Todorovic et al., 2011; Riviezzo, 2014), as such proposals were developed for universities operating in completely different contexts. Second, in the academic community, there is no general agreement on the main factors involved in the creation of university spin-offs. According to Hitt et al. (2007), studies should start from a multilevel model that includes the organization level and the environment level to further examine the interrelationships between factors. Therefore, this study contributes to this gap by exploring multilevel interactions between department, university and national factors that may jointly influence the creation of university spin-offs.

The structure of this study is arranged as follows. After the introduction, the literature review and hypotheses are developed. Next, the methodology and main results are presented. The study concludes with a discussion of the main results and contributions, as well as proposals for future research.

**Literature review and hypotheses**

*Entrepreneurial orientation in universities*

The concept of an entrepreneurial university emerged from the new social and economic landscape in which universities seek to contribute to innovation, competitiveness and the economic growth of the territories in which they are located (Guerrero et al., 2016). Universities contribute to economic growth through different mechanisms, such as creating pre-conditions for regional learning systems, generating technology based spin-offs, collaborating in R&D with companies, commercializing research activities and establishing corporate research contracts and training scientists, engineers, researchers and other graduates (Uctu and Jafta, 2012). In this sense, according to Guerrero et al. (2015), the role of universities is dichotomous, because they focus on both innovation and entrepreneurship. Based on this competitive landscape, universities should change their traditional orientation...
to an entrepreneurial orientation (EO) to meet regional economic and societal needs (Kirby et al., 2011).

EO can help universities to be more creative and innovative and be prepared to take risks in addition to strategically aligning their structure to respond quickly to market needs (Bhayani, 2015). However, the roots of EO can be traced to the strategy-making process literature and have been considered a strategic construct at the firm level. EO considers administrative practices, philosophies and styles in making decisions that are of an entrepreneurial nature (Anderson and Eshima, 2013). In essence, EO characterizes the practice of entrepreneurship in the organization and the strategic posture of the firm as a whole (Anderson et al., 2015).

Although the past 30 years have demonstrated significant advances in the study of EO (Martens et al., 2016; Wales, 2016), application of the concept in other organizational contexts remains an underexplored area, and there is still no precise definition of what it means (Morris et al., 2011). Thus, it is convenient to study the application of EO in an especially distinctive context, like that of the universities, and then adopt a definition of the construct that is different from that used for private and profit-oriented organizations.

Zhang et al. (2014) developed a new scale for measuring EO, which is neutral with regard to industry context and type of organization. However, according to Todorovic et al. (2011) and Riviezzo (2014), it is possible to apply the concept of EO within organizations that are not profit-oriented, such as universities, because they may pursue the strategic aim of creating value and opportunity through a continuous search for innovative activities. However, this application must take into account the peculiarities of the universities and then propose adjustments to the scale to measure EO. Moving from this point, Todorovic et al. (2011) developed a scale designed for the context of Canadian universities that considered four dimensions: research mobilization, unconventionality, industry collaboration and university policies. Later, Riviezzo (2014) showed that the operationalization of Todorovic et al.’s (2011) scale is slightly different when applied to an Italian context.

There are many forces influencing universities to seek more entrepreneurial approaches to diversify revenue and contain costs (Clark, 2004). Commercialization of university research has become one way to increase university revenue through revenue sharing with inventors or patent-based royalties (Baldini, 2010a; Savva and Taneri, 2015). However, more recently, universities have played a direct role in the creation of new firms. The new firms that emerge from the university context and which are created to commercially exploit knowledge, technology or research results that were developed within the university are known as university spin-offs (Karnani, 2013; Pirnay et al., 2003; Rasmussen and Borch, 2010).

University spin-offs exhibit a performance premium and produce a larger stream of social benefits and greater dynamic capabilities than industry start-ups (Czarnitzki et al., 2014; Ortin-Angel and Vendrell-Herrero, 2014). Previous studies have considered these spin-offs as a measure of potential commercial outcomes of an entrepreneurial university (Audretsch, 2014; Avnimelech and Feldman, 2015; Rasmussen et al., 2011; Román-Martínez et al., 2017). Therefore, based on the previous arguments, this study states that:

**H1.** A university’s EO is positively related to the creation of university spin-offs.

**The influence of university-level factors**

The influence of university-level factors has been important in spin-off activity. Besides educational support, universities can also support the spin-off creation process by creating an environment conducive to entrepreneurship. Kraaijenbrink et al. (2009) argue that such
supportive environments may give students (and academics) the confidence to initiate their own businesses. Recently, Mustafa et al. (2016) demonstrated that in the Malaysian context, the university support environment was a significant predictor of entrepreneurial intentions among students.

The university entrepreneurship literature provides some theoretical reasons to suppose that the interaction between EO and university-level factors should increase spin-off creation. However, previous research has not been conclusive, and the results have been diverse (Harrison and Leitch, 2010; Meoli and Vismara, 2016). Among the university-level factors that have been associated with an entrepreneurial university and that have been well established in literature are the use of incubators or entrepreneurship support programs (Di Gregorio and Shane, 2003; Meoli and Vismara, 2016). Some universities offer incubation services, which create a supportive environment to increase the potential of spin-offs (Clarysse et al., 2011). According to Jensen and Thursby (2002), most university technologies or research results are embryonic, requiring further development before they can be sold in the marketplace. Slavtchev and Göktepe-Hultén (2016) revealed that spin-offs supported by the parent organization in the early stages (i.e. nascent and seed) were able to generate their first revenues sooner.

Incubators or support programs not only help entrepreneurs to improve their business proposals around the technologies, thus obtaining a better commercial impact, but also determine the performance of spin-offs (Epure et al., 2016; Soetanto and Jack, 2016). Rasmussen and Wright (2015) argued that universities can promote spin-offs by suggesting that the nature of the support depends on the specific demands of the spin-offs. In some instances, university incubators or programs may be independently operated while still working jointly with the university (Fini et al., 2011). In other cases, the incubators or programs may be units of the university (Van der Sijde et al., 2002; Menzies, 2002). Whatever model the university follows, the study conducted by Ikebuaku and Dinbabo (2018) in Nigeria suggests that to enhance entrepreneurial capabilities, business incubation and entrepreneurship education should be integrated. Therefore, the use of incubators or support programs should increase spin-offs creation.

Another university-level factor in fostering spin-off creation that has been documented in the literature is the role of technology transfer offices (TTOs). For example, Huyghe et al. (2014) have studied TTO activities and how these activities help nascent spin-offs during the pre-spin-off process. Although the creation of university spin-offs typically represents the main route to research commercialization, the studies of Lockett and Wright (2005), Nosella and Grimaldi (2009) and Macho-Stadler et al. (2008) have shown that TTOs engage in various support services for the commercialization of academic research. Among the main services that these studies have identified are advising, mentoring and networking with organizations involved in technology-transfers activities. However, Rasmussen and Wright (2015) show that these kind of services in fact have minimal impact on spin-off creation.

On the other hand, Avnimelech and Feldman (2015) suggested that the higher the share of royalties received by the investor and the more efficient the TTO in terms of licensing revenues, the higher the formation rate of spin-offs. Additionally, Goel et al. (2017) declared that there are not only qualitative differences among the different modes of university–industry collaboration but also differences in the intrinsic motivations and reward structures of academia and of industry. Still, Rasmussen and Borch (2010) have pointed out that if TTOs do not represent a high priority across all hierarchical levels of the university (i.e. president, deans and directors), then the university is not likely to create many spin-offs from this policy. Moreover, Goel and Göktepe-Hultén (2018) found that under certain
circumstances, researchers are more likely to bypass a TTO to commercially exploit their research results.

Finally, previous studies have shown that spin-off activity is positively related to research productivity and quality (Avnimelech and Feldman, 2015; Colombo et al., 2010; Di Gregorio and Shane, 2003). Universities that are more intellectually eminent could be more likely to generate spin-offs because intellectual eminence allows schools to produce new technologies of perceived higher quality. Di Gregorio and Shane (2003) found that spin-offs from top universities were more likely to attract venture capital than those from less prestigious institutions. They also found that the university’s ranking positively influences academic spin-off formation rates, and that it is easier for academics from top-tier universities to assemble resources to create start-ups owing to their increased credibility, which is consistent with Avnimelech and Feldman’s (2015) study results. This is because the prestige of a university is related to the prestige of its researchers, who, to reap the benefits of their valuable intellectual property, are more likely to create spin-offs (Powers and McDougall, 2005). Decision makers increasingly use rankings to evaluate and improve the quality of university (Guerrero and Urbano, 2012). Thus, being at a top position in university rankings can be expected to be positively associated with universities’ technology transfer activity and consequently with the spin-offs created. Previous studies at universities in Spain (Román-Martínez et al., 2017), Italy (Baldini, 2010b; Meoli and Vismara, 2016), Hong Kong (Uctu and Jafta, 2012), Singapore (Wong et al., 2007), Norway (Rasmussen and Borch, 2010) and Taiwan (Hsu et al., 2015) have showed either directly or indirectly that universities occupying higher positions in rankings were also the most active in terms of creating university spin-offs. From a similar perspective, O’Shea et al. (2005) found that faculty quality has a positive and statistically significant impact on the number of university spin-offs created, whereas the numbers of faculty and research students are not significant. Zhang (2009) found that a university’s research quality is the most significant variable in explaining the number of academic entrepreneurs emerging from a university. Therefore, this study suggests that the higher the ranking of the university, the higher the spin-offs creation. According to these previous arguments, this study suggests that:

$$H2. \text{ University-level factors (i.e. incubators, TTOs and intellectual eminence) positively moderate the relationship between EO and university spin-offs creation.}$$

**The influence of national-level factors**

According to previous studies, among the determinant factors in the creation of spin-offs are the environmental factors (Audretsch et al., 2012; Fini et al., 2011; O’Shea et al., 2008). These studies emphasized that university entrepreneurship is influenced by the larger environment, which encourages or inhibits entrepreneurial behavior. Drnovsek and Erikson (2005) proposed that the external environment in which entrepreneurs operate can indirectly affect their entrepreneurial tendencies through entrepreneurial attitude. According to the Global Entrepreneurship Monitor (GEM, 2017), there is an interdependency between entrepreneurship and economic development that is influenced by the social, cultural, political and economic conditions in which it takes place.

The World Economic Forum (WEF, 2016) stated that a set of institutions, policies and factors determine a nation’s competitiveness, which, in turn, has a strong bearing on a firm’s competitiveness and growth. At the national level, previous research has suggested different explanations for variation in university spin-offs activity (Hayter, 2013, 2015; Monge et al., 2016; Sternberg, 2014; Baldini, 2010b). Hence, it is important take into account the influence
that the context and the institutions that work within that context have on the creation of university spin-offs.

One contextual factor that has been considered in the literature is the efficiency of the goods market (Li and Liu, 2013; Tracey and Phillips, 2011). Countries with efficient goods markets are well positioned to produce the right mix of products and services, given their particular supply-and-demand conditions, and to ensure that these goods can be most effectively traded in the economy, both domestic and foreign (WEF, 2016). Market efficiency also may force firms to be more innovative and customer-oriented, thus imposing the discipline necessary for efficiency to be achieved in the market. Fundamental to this is the recognition that new venture creation is a function of interdependences with the entrepreneurial system, which, in turn, recognizes the importance that individual components of the system may have in the overall development of an economy (Neck et al., 2004; Spilling, 1996).

Another factor that has shown to be important is the financial market. Entrepreneurial finance literature has recognized that access to financial resources has a significant influence on the propensity to start academic spin-offs (Chen et al., 2010; Zhan, 2009). According to the WEF (2016), economies require sophisticated financial markets that can make capital available for private-sector investment from such sources as loans from a sound banking sector, well-regulated securities exchanges, venture capital and other financial products. Insufficient financial resources is regularly cited by nascent-entrepreneurs as a major barrier to starting a business (Da Rin et al., 2006). Venture capital has been recognized as the main source of finance for entrepreneurship (Gompers and Lerner, 2004; Zook, 2004), and at the regional level, the availability of early-stage investors influences the decision to create a university spin-off (Lockett and Wright, 2005). Di Gregorio and Shane (2003) and Avnimelech and Feldman (2015) commented that venture capitalists not only provide capital but also serve as “market makers” by connecting new technology firms with potential suppliers, customers and employees.

Finally, innovation is particularly important for economies as they approach the frontiers of knowledge, where firms must design and develop cutting-edge products and processes to maintain a competitive edge and move toward even higher value-added activities (WEF, 2016). This progression requires an environment that is conducive to innovative activity in general and university spin-offs in particular. Zhang and Duan (2010) and Alba et al. (2013) found that the positive impact of innovative activity on firm creation is affected by the market structure in which firms are included and how their innovation is generated and spread through the economic system. In this order of ideas, the university spin-off formation rate has often been seen as a key indicator of the quality of the industry–science link within a country (Macho-Stadler et al., 2008). Likewise, previous studies have found that universities’ technology transfer activities influence their spin-off creation (Karnani, 2013; O’Shea et al., 2005). Also, the strength of the intellectual protection in a specific technological area influences the decision to create new ventures (Avnimelech and Feldman, 2015). Therefore, based on the above considerations, this study suggests that:

\[ H3. \text{ The consequences of the interaction between EO and university-level factors (i.e. incubators, TTOs and intellectual eminence) on university spin-off creation are moderated by national-level factors (i.e. goods market efficiency, financial market development and innovation).} \]

The research model is illustrated in Figure 1, which posits that there are positive interactions among the variables included in the study. The model also controls for
university characteristics whose influence on university spin-offs creation has not been conclusively proven, namely, university size and type of university (private or public).

**Methodology**

*Sample and data collection*

This study examined the effect of different factors at different levels on university spin-off creation. A university is considered to be an entity that operates under a single set of policy rules (Di Gregorio and Shane, 2003). This study was based on a purposive sampling method in which universities had to meet two conditions. First, a university had to be located in a country in the Latin American region and that country, in turn, had to be included in the Global Competitiveness Report developed by the World Economic Forum (WEF, 2016). This report tracks the performance of nearly 140 countries in 12 pillars of competitiveness. The measures of national-level factors were to be taken from this report, which includes 18 countries from the Latin American region. Second, a university had to be ranked in the QS World University Rankings, one of the world’s most popular university ranking systems. The QS system comprises the overall global and subject rankings, alongside five independent regional tables (i.e., Asia, Latin America, Emerging Europe and Central Asia, the Arab Region, and BRICS), and is the only international ranking to have received International Ranking Expert Group approval (IREG, 2016). The measures of intellectual eminence were to be taken from QS Latin American University Rankings. Potential participants that met these conditions yielded an initial sample of 385 universities ranked in the QS system, located in 18 different countries.

To gather data for independent and control variables, this study used a variety of available sources, including the Global Competitiveness Index Report, QS World University Rankings, university websites, an incubators database, an entrepreneurship support programs database, and a survey administered to key informants who were department heads or directors in the disciplines of business or engineering. The use of key informants is a widely used approach among entrepreneurship scholars, as they can assess an organization’s strategic posture and performance (Covin and Slevin, 1989; Wiklund and Shepherd, 2003).

Table I provides a summary of each variable and its source. To obtain survey responses, the survey was administered by SurveyMonkey to key informants from the 385 universities,
who received an electronic invitation because of the geographic dispersion of respondents and to benefit from speed, ease of access and reasonable cost (Ilieva et al., 2002). Participants were selected from universities’ websites using the stratified convenience sample approach described by Creswell (1994). The electronic invitations were sent via the internet between July and October of 2017. Additionally, reminders (in the second, fourth and sixth weeks after the initial invitation) and telephone contact methods were used to improve the response rate in the survey and to gather information that complemented the survey (McDonald et al., 2015). In the end, a total of 52 universities responded to the survey and reported all relevant information, which represented a 13.5 per cent response rate. Therefore, the final sample represented 52 universities (22 public and 30 private) from 12 countries in the Latin American region: six from Chile, two from Panama, 14 from Mexico, one from Costa Rica, five from Colombia, two from Peru, nine from Brazil, one from Honduras, three from Ecuador, five from Argentina, one from Bolivia and three from Venezuela.

**Measurements**

University spin-offs, a count of the number of spin-offs created by a given university in a one-year period, was the dependent variable in the study. Given the difficulty that key informants might have had in reporting the number of spin-offs created over the last few years, they were only asked to report the number created in the last year (i.e. from July

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Variable description</th>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>Spin-offs</td>
<td>Number of university spin-offs created from a given university in the 2016-2017 period</td>
<td>Survey</td>
</tr>
<tr>
<td>EO</td>
<td>ENTRE-U Scale that measures EO within university</td>
<td>Survey</td>
</tr>
<tr>
<td>Incu_Program</td>
<td>Taking a value of 0 if university has no incubator or entrepreneurship support program, 1 otherwise</td>
<td>University web pages</td>
</tr>
<tr>
<td>TTO</td>
<td>Taking value of 0 if university has no technology transfer office, 1 otherwise</td>
<td>University web pages</td>
</tr>
<tr>
<td>Eminence</td>
<td>The overall rating score of university</td>
<td>QS Latin American University Rankings 2016-2017</td>
</tr>
<tr>
<td>Mark_Eff</td>
<td>Scale that measures how efficient are goods markets in a country to produce the right mix of products and services given its particular supply-and-demand conditions</td>
<td>The Global Competitiveness Index Report 2016-2017</td>
</tr>
<tr>
<td>Finan-Mark</td>
<td>Scale that measures how efficient the financial sector is in a country, which allocates the resources to its most productive uses</td>
<td>The Global Competitiveness Index Report 2016-2017</td>
</tr>
<tr>
<td>Innovation</td>
<td>Scale that measures how conducive an environment is to innovative activity, which is supported by both public and private sectors</td>
<td>The Global Competitiveness Index Report 2016-2017</td>
</tr>
<tr>
<td>Uni_Size</td>
<td>Count of total students in a university</td>
<td>QS Latin American University Rankings 2016-2017</td>
</tr>
<tr>
<td>Type_Uni</td>
<td>Taking value of 1 when the university was public, 0 if the university was private</td>
<td>QS Latin American University Rankings 2016-2017</td>
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**Table I.** Overview of the variables

University spin-offs creation
2016 to June 2017). The working definition of university spin-off in this study was adopted from Pirnay et al. (2003). Although the exact number of spin-offs created was not possible to obtain from the available databases, the key informants were asked to estimate the number of spin-offs created in the 2016-2017 period according to the following scale: 1 = 1 to 5 firms; 2 = 6 to 10 firms; 3 = 11 to 15 firms; 4 = 16 to 20 firms; 5 = 21 to 25 firms; and 6 = more than 26 firms. There is no reason to think that the average number of spin-offs created per university should be systematically biased between different institutions.

EO was measured using Todorovic et al.’s (2011) ENTRE-U scale. Originally, the scale was developed to emphasize entrepreneurial activity at the department level in the disciplines of science and engineering. Given the purposes of this study, therefore, the word "department" was changed to the word "university" and the scale was focused on the disciplines of business and engineering. These minor adjustments did not affect the reliability of the scale. The ENTRE-U scale includes four dimensions (i.e. research mobilization, unconventionality, industry collaboration and university policies) and the items are measured as follows: six research mobilization items included “Faculty member in our university emphasizes applied research” and “Many of our faculty members conduct research in partnership with non-academic professionals”; eight unconventionality items included “Compared to other similar universities in this province, we are good at identifying new opportunities” and “Cooperation with organizations outside the university significantly improves our research activities”; five industry collaboration items included “We are recognized by industry or society for our flexibility and innovativeness” and “We believe that our university should build relationships with private or public sector organizations”; and four university policies included such items as “Compared to most other universities, our university is very responsive to new ideas and innovative approaches”. Key informants used a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree) to rate the extent to which each item from each dimension is described. Whereas the dimensions of the ENTRE-U scale can exhibit independent variance, this study followed Todorovic et al.’s (2011) recommendation in aggregating the all items into a single measure of a university’s EO by taking the average of all of them. The Cronbach’s alpha for EO was 0.756.

To measure if the presence of incubators or entrepreneurship support programs influenced the university spin-off creation, this study examined whether the university, by using incubators or support programs, provided facilities that fostered new firms. This study included a dummy variable of 1 if the response was affirmative. To measure if the presence of TTOs influenced the university spin-off formation rate, this study examined whether or not spin-offs had access to TTOs. A dummy variable of 1 was included if the response was affirmative. Finally, to measure if university eminence increased the creation of university spin-offs, this study examined the overall rating score of universities published in the QS Latin American University Rankings 2016-2017. Because the overall rating score might be very diverse, in an alternative specification, this study measured intellectual eminence according to the position of the university using the following rank scale: 1 = position 251 or beyond; 2 = position 201-250; 3 = position 151-200; 4 = position 101-150; 5 = position 51-100; and 6 = position 1-50.

The measures of goods market efficiency, financial market development and innovation were taken respectively from the 6th, 8th, and 12th pillars of the Global Competitiveness Index Report 2016-2017 for each country, whose values are on a 1 to 7 scale. According to the university size, previous studies have found that it has no significant impact on the formation rate of spin-offs (Avmimelech and Feldman, 2015; O’Shea et al., 2005; Zhang, 2009); therefore, this study included this variable only as a control variable by the total
number of students in a university according to the following scale: 1 = size < 5,000 students; 2 = size < 12,000 students; 3 = size < 30,000 students; 4 = size > 30,000 students.

Finally, previous studies have not been conclusive about the influence of type of university on the formation rate of spin-offs (Avnimelech and Feldman, 2015); therefore, this study included the university type with a dummy variable of 1 if the university was public or 0 if it was private.

**Reliability and model specification**

First, an exploratory factor analysis was performed to validate and assess the ENTRE-U scale, which measures EO within universities. Following Carlson et al.’s (2000) recommendations, eight items were dropped from the original scale because they failed to discriminate between dimensions. Then, principal axis factoring with oblique rotation requesting four factors was performed with the remaining 15 items. As a result, four factors with eigenvalues greater than 1 were generated, and accounted for 52.07 per cent of the variance. Then, before the final data analysis, it was necessary to show measurement invariance because the survey data were gathered in 12 national settings. Additionally, if invariant measures are used, results can be biased. According to Steenkamp and Baumgartner (1998), configurational invariance (i.e., the same pattern of factor loadings across cultures) for all multi-item dimensions of ENTRE-U scale was analyzed. The results of this test confirmed good fit of the data. Moreover, the threat of common method variance was limited in this study owing to the likely inability of respondents to guess the hypothesized two- and three-way interactions and provide responses accordingly (Aiken and West, 1991). Also, using only key informants (i.e., department heads or directors in the disciplines of business or engineering) who have high levels of confidence in their responses is consistent with the guidelines for reducing common method bias provided by Rindfleisch et al. (2008).

For hypothesis testing purposes, this study performed multiple hierarchical regression analysis because this method examines the effects of additional variables above and beyond the effects of the variables in the previous model (Cohen et al., 2003). Besides, it avoids issues of model fit that can become problematic with the use of the structural equation model in small data sets (Kline, 2005). Finally, following recommended procedures by Ping (1995) and Aiken and West (1991), the study orthogonalized all variables that were involved in multiplicative interactions to reduce multicollinearity problems. There was no evidence of multicollinearity, as the variance inflation factor (VIF test) for each regression analysis was less than the recommended threshold of 5 (O’Brien, 2007).

**Results**

Table II presents the summary statistics for all variables included in the sample, and Table III presents the correlation matrix of the variables used in the regressions. As expected, there is a correlation between EO and the number of university spin-offs created ($r = 0.22, p < 0.05$). Likewise, there is a correlation between EO and the existence of incubators or entrepreneurship support programs ($r = 0.12, p < 0.05$) and TTO ($r = 0.08, p < 0.10$). In addition, the existence of incubators is correlated with goods market efficiency ($r = 0.13, p < 0.05$) and financial market development ($r = 0.09, p < 0.10$). Furthermore, a correlation can be observed between financial market development and innovation ($r = 0.19, p < 0.01$). Finally, the three national-context dimensions (i.e., goods market efficiency, financial market development and innovation) are correlated with the creation of university spin-offs ($r = 0.12, r = 0.14$ and $r = 0.05$, respectively, all with $p < 0.10$).
A multiple hierarchical regression analysis with interaction terms was applied according to Aiken and West (1991). In the first model, the control variables were entered in the regression analysis with university spin-offs as the dependent variable (Table IV, Model 1). Next, the effect of EO, incubators, TTOs and intellectual eminence were entered (Table IV, Model 2). The results showed support for H1, as EO is significantly and positively related to the number of university spin-offs created ($r = 0.12$, $p < 0.05$). Next, the interaction terms were entered into the regression. In Table IV, Model 3 shows that whereas the positive interaction effect between EO and incubators is supported (thereby lending support to H2a), a negative interaction effect of EO and TTOs on university spin-offs leads to the rejection of H2b. Likewise, the interaction between EO and eminence was non-significant on university spin-offs ($b = 0.16$, non-significant), which therefore leads to the rejection of H2c.

H3 relates to the national dependency of the interaction effects examined in H2a, H2b and H2c. In testing whether national-level factors impact the relationship between the two interaction effects and university spin-offs, this study followed the procedure proposed by Kirkman et al. (2009). The analysis added to the interaction terms the scores for the national level as reported by the Global Competitiveness Index; that is, three-way interactions were built, which consisted of the two examined variables (e.g. EO and Incu_Program) and the respective scores for national-level factors. To estimate these three-way interactions, the study entered all possible two-way interactions between the relevant variables into the regression equation according to Dawson and Richter (2006).

As Table V shows in Model 3, H3a was the only significant three-way interaction that emerged from the results ($\beta = 0.18$, $p < 0.10$). Following Dawson and Richter (2006), this
result indicates that the positive moderating effect of the existence of incubators or entrepreneurship support programs on the relationship between EO and the university spin-offs creation is stronger as a consequence of goods market efficiency as a national-level factor. Thus, this result indicates that the interaction effects examined in $H3b$-$i$ are not subject to significant national-level factors variation.

Discussion

Key findings and contributions

The objective of this study was to examine, through a multilevel research model, the creation of university spin-offs within the Latin American region. By examining multilevel interactions across different factors, it was expected that through a set of hypotheses that have been derived from previous literature, this study would provide a more refined understanding of the entrepreneurial university phenomenon. The results obtained in this study show important contributions, which are discussed below according to each hypothesis.

Concerning $H1$, it was hypothesized that a university’s EO was positively related to the creation of university spin-offs, which was supported. The result of $H1$ confirms that the ENTRE-U scale developed by Todorovic et al. (2011) has the potential to support university administration efforts to develop conditions more conducive to the creation of spin-offs. This result is consistent with the proposal of Clark (2004), who argued that universities are encouraged to become more entrepreneurial and, consequently, they require changes in their culture, governance and administration. Another explanation for $H1$ is that although ENTRE-U has a high level of abstraction, it allows for a focus on aspects that really matter to improve the entrepreneurial personality of the university. Previous studies have argued that it is problematic to find the best practices for promoting entrepreneurship inside universities (Van der Sijde et al., 2002), and the result of this study confirms that research mobilization, unconventionality, industry collaboration and university policies are mechanisms that really facilitate the creation of spin-offs.

Further, the result for $H1$ is a partial explanation of the formation of university spin-offs, where EO is an important element for promoting a cultural change in the organization and
facilitates the commercialization of university research (Savva and Taneri, 2015). Also, this result contributes to the proposals to adapt the original conceptualization of the Miller/Covin and Slevin scale, which is predominant in the study of EO (Rauch et al., 2009; Wales et al., 2013), to different contexts (i.e. universities) and demonstrates that organizations can benefit from doing things in an entrepreneurial way (Martens et al., 2016).

Concerning the interaction hypotheses H2a-c, there is evidence that incubators or entrepreneurship support programs were significant as moderators in the EO–university spin-offs relationship. These results show that not all university policies are necessarily important for promoting the entrepreneurial activity. Some reasons for this may be the

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Model 1</th>
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<td>H3i EO × Eminence × Innovation</td>
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<td>F</td>
<td>13.77*</td>
<td>10.33*</td>
<td>8.73*</td>
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Notes: *p < 0.10; **p < 0.05; ***p < 0.01
following: First, research results can be commercially exploited by different mechanisms when one of them is spin-offs (Audretsch, 2014; Avnimelech and Feldman, 2015). Therefore, TTOs in the universities included in the sample of this study were not a decisive mechanism for improving the creation of spin-offs. According to Swamidass and Vulasa (2009), when a university’s resources are scarce, technology transfer activity is frequently sacrificed. Additionally, Markman et al. (2008) suggested that many technologies developed in universities are going out the back door rather than through the TTOs. This result could indicate that spin-offs are not necessarily technology-based firms, but rather firms created by students to exploit, in the business sphere, tacit knowledge that they have personally accumulated during their studies (Pirnay et al., 2003; Fini et al., 2010). These findings could suggest that informal channels for the creation of spin-offs are common at universities, which is something that was previously discussed by Karnani (2013).

Second, this study considered that highly ranked universities are more likely to create spin-offs; however, the results did not confirm this assumption. An explanation of this result is that the reputation of the university and its members is not enough to assemble the necessary resources to create spin-offs, for example venture capital (Di Gregorio and Shane, 2003; Fuller and Rothaermel, 2012). In addition, not only does the quality matter, but also the quantity of human capital resources (i.e. faculty and research students) matters in determining spin-off activity. Third, both TTOs and intellectual eminence are not encouraging entrepreneurial activity, and this result can be a consequence of the fact that policies and organizational structures do not provide a greater motivation to faculty and research students to create spin-offs. Previous studies have argued the importance of influencing the propensity of the academic community for new venture creation (Baldini, 2010a; Avnimelech and Feldman, 2015).

The results obtained in H2a-c contribute to the research on spin-offs, as these show the policies that do not influence the university's entrepreneurial activity. In other words, if the university encourages the commercial exploitation of research results by its faculty and students, this could increase the number of spin-offs created. This implies a greater involvement of TTOs and takes advantage of the good reputation of a university’s faculty. According to Chan et al. (2016), universities should promote research ambidexterity, which jointly develops both research publication and research commercialization when universities pursue more entrepreneurial and commercial activities.

Concerning the three-way interactions represented in H3a-i, the results showed that among all the combinations that were hypothesized, just one of them was significant. The result of H3a shows that the national component related to goods market efficiency indirectly and positively influences the creation of spin-offs. A more detailed analysis of this result indicates that the exchange of goods is being favorable so that companies can innovate, as well as be more customer-oriented (WEF, 2016). In addition, according to the WEF (2016), the best environment for competitiveness requires minimal intervention by the government. Therefore, from the result of H3a, it can be said that spin-offs are finding favorable conditions in the market of goods for the identification and exploitation of entrepreneurial opportunities.

The rejection of H3b-i indicates that the factors of financial market development and innovation did not show any influence on the two-way interactions. In other words, the availability of capital through financial markets proved not to be critical for the creation of spin-offs. Furthermore, this result may be related to the fact that the countries included in the sample are not designing or developing cutting-edge products or processes to maintain their competitiveness (WEF, 2016). It was previously commented that the spin-offs created were probably more related to know-how, skills and working conditions of faculty and
students. Therefore, this result may indicate insufficient investment in R&D, as well as a weak collaboration between universities and industry.

The results obtained in the three-way interaction hypotheses show that a national-level factor can influence the creation of spin-offs, as long as there are factors closer to promoting or stimulating entrepreneurial activity. This result contributes to the knowledge that previous studies (Rothaermel et al., 2007) have generated on the different conditions and factors that influence the study of university entrepreneurship.

Besides the above contributions to entrepreneurship studies, the findings of this study also make contributions to practice and policy. The ENTRE-U scale that was used in this study shows that EO can be used to develop other scales that help explain entrepreneurial results in other organizational contexts, such as that of the public sector (Morris et al., 2011). Additionally, the findings suggest that university efforts to encourage entrepreneurship may be equally important in the early stages of the entrepreneurial process. Recently, Saeed et al. (2015) identified the concept of development support, which refers to the specific provisions that universities provide to students regarding the business development of ideas and introductions to entrepreneurial role models. Such support should be provided not only by the university but also by government institutions, because it is likely to encourage individuals’ motivation and thus may be a catalyst for the new firm creation process.

Finally, this study fails to find adequate support for the argument that TTOs and intellectual eminence make university spin-off creation more likely. This finding is revealing not only for university authorities but also for policymakers interested in influencing economic development through technology transfer. According to Sternberg (2014), universities are a necessary but not sufficient condition for regional economic development. Only regions that can increase their entrepreneurial absorptive capacity and turn it into economic wealth will enjoy the benefits of high-quality local universities (Fini et al., 2011).

Implications
Explaining university spin-offs creation according to the different variables included in this study has different implications. First, this study assessed the EO of a university using the ENTRE-U scale. According to the results, the four dimensions of this scale (i.e. research mobilization, unconventionality, industry collaboration and university policies) had implications for making universities more entrepreneurial. Understanding that these dimensions are distinct yet related allows an improved understanding of the organizational design of the universities included in this study. For example, Reyes (2016) showed that the National University of Singapore was affected as an entrepreneurial university by institutional configuration as well as by disciplinary identity, the power of important actors and risk perceptions attached to entrepreneurial activities.

Second, universities are an important source of knowledge creation, and understanding the different mechanisms by which knowledge from universities spills over is important to understanding technology transfer and economic growth. The results of this study show that spin-offs were a good indicator of entrepreneurial activity in universities and that incubators supported this activity. However, the support of the TTO was not significant. Based on these results, university authorities should reflect on the role that TTOs play in the commercialization of research generated in universities, in such a way that their function would be more effective and support the creation of spin-offs. Although this study did not analyze the specific reasons why TTOs were not significant, other studies have identified factors that significantly influence the decisions of academic inventors to bypass TTO (Goel and Göktepe-Hultén, 2018; Thursby et al., 2009). Additionally, in the context of a Chinese university, Malik (2013) argued that managerial decisions, flaws in communication and
organizational culture were all factors that contributed to failure at different stages of the technology commercialization process.

Third, successful university spin-offs can generate wealth through intellectual property, and universities are interested in capturing part of this wealth to diversify revenue and maintain the sustainability of their economic models and organizations. However, the results showed that the TTOs and the intellectual eminence of the universities included in this study did not contribute to the creation of wealth. To improve this, it is necessary to both individually and collectively strengthen these two factors in such a way that research publication and research commercialization genuinely contribute to the creation of wealth in the Latin American region.

Fourth, university spin-offs tend to be located geographically close to the institutions that supported them, making them valuable entities for local economic development and agglomeration economies. An implication of great importance for firms in general and university spin-offs in particular is the support space, understood as everything that, being territorialized, helps firms to function. The support space is local and is a creator of externalities, and therefore, the governments of the different countries included in this study should promote this essential universe of externalities in such a way that opportunities can be commercially exploited. For example, Yao et al. (2016) found that university students’ perceived social and economic environment in China had a positive influence on their entrepreneurial tendency. Similarly, Ikebuaku and Dinbabo (2018) showed that in Nigeria, entrepreneurs increased access to infrastructures and resources necessary for entrepreneurial success through business incubation.

Finally, universities make different decisions than private firms; therefore, the creation of spin-offs and intellectual property can generate important questions about university norms and policies. The results of this study would be sufficient to lead one to suppose that not all the organizational designs of universities are capable of establishing a fruitful link with the environment or properly carry out their function of commercially exploiting research results through the creation of spin-offs. Therefore, for a university to contribute to economic development, it needs an organizational transformation and thus, in turn, a cultural transformation. Other studies have reached similar conclusions in Asia. For example, Wong et al. (2007) studied the case of the National University of Singapore and commented that the role of the university requires a significant reform and transformation of the structure and incentive system of the traditional university system. The studies by Sharma (2015) in India and Tang et al. (2014) in China showed that university entrepreneurship education did not fully satisfy students’ needs. Therefore, these results show that the role played by universities needs to be reviewed to make it more effective in spin-off creation.

Limitations and suggestions for future research
The results of this study make important contributions to the study of university entrepreneurship. However, these should be observed in light of some limitations that offer opportunities for future research. First, the size of the sample is an important factor. Although the statistical analysis offers reliable results, it would be interesting if future research works considered a larger sample and a greater diversity of universities. These kinds of studies could focus more on cross-institutional variations in spin-off creation in the context of different countries. Second, the lack of records or databases to identify the exact number of spin-offs created by universities was an important limitation. Given this, it was necessary to develop a range scale to obtain a better approximation of the number of spin-offs created. This limitation meant that only one year of data was analyzed, as obtaining data from a longer period was very complicated and unreliable. With this limitation, it was
not possible to identify more characteristics of the spin-offs. Therefore, future research should overcome this limitation to attain an authentic classification of spin-offs according to previous studies (Pirnay et al., 2003; Druilhe and Garnsey, 2004; Mustar et al., 2006). Having more specific information about the spin-offs, future studies could also, as previous studies (Sullivan and Meek, 2012; Goel et al., 2015) have done, analyze whether gender influences the creation of this type of firm.

Third, this study only considered spin-offs creation without considering what may happen to them during their start-up stage. Future studies should examine the performance of spin-offs and identify if they really contribute to the economic development of the region. These studies would complement the results obtained in this paper, as this would give a more complete description of the spin-offs phenomenon. Finally, the results of this study show variables that did not influence the creation of spin-offs (i.e. TTOs and intellectual eminence). Although this study was exploratory, future research could examine each factor in a more fine-grained manner to identify the reasons why it had no contribution. Future studies can consider other variables that this study did not contemplate, for example the university’s policy on venture capital or its technological readiness, as other factors of national context. In addition to other factors, it may also be interesting for future studies to consider new theoretical perspectives on the study of the creation of spin-offs. The resource-based view can help illuminate how the resources and capabilities of the university contribute to this process (Powers and McDougall, 2005; Malik, 2013). Organizational theory can also help to explain how the university adapts its strategy and structure to the requirements of the environment (Bercovitz and Feldman, 2008; Siegel et al., 2007).

Conclusion
There is a growing interest in entrepreneurial activity and research commercialization within universities. Consistent with previous research, this study contributes by confirming that it is suitable to explain the entrepreneurial posture of universities with the EO construct and that EO, in turn, influences the creation of university spin-offs to exploit knowledge, technology or research results. However, the findings also show that relying solely on the main effect of EO provides an incomplete understanding of spin-offs creation. Hence, this study contributes by suggesting that a multilevel model that involves the appropriate alignment of an EO, incubators or entrepreneurship support programs and goods market efficiency might provide an opportunity to gain a deeper understanding of the complex process of spin-offs creation. More research needs to be conducted into multilevel models, especially those that involve EO, university-level and national-level factors. It is hoped that the results of this study will be useful for fellow researchers in the field of university spin-offs.

References


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Institutional barriers to venture capital financing: an explorative study for the case of Iran

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Abstract
Purpose – This paper aims to explore the barriers that constrain the venture capital (VC) financing in Iran based on the institutional theory.

Design/methodology/approach – To answer the question, “How institutional barriers constrain the VC financing in Iran?”, 31 detailed interviews were conducted, and the interviewed data were analysed by using the grounded theory method.

Findings – There exist several institutional barriers (formal and informal) in different stages of the VC investment process in Iran. Major formal institutional deficiencies include lack of appropriate financial regulations, inefficacy in tax, labour, property rights, financial disclosure, bankruptcy, investor’s protection laws and regulations, lack of credit rating/scoring system, inefficacy in small and medium-sized enterprise-supporting policies and capital market underdevelopment. Moreover, there exist some informal institutional barriers such as culture of capitalism disapproval, culture of secrecy, individualistic customs and weakness of managerial skills that constrain VC activities in Iran.

Research limitations/implications – The research findings imply that the government’s role should change from “establishment of government-sponsored VC funds” to “enforcement of institutional reforms that lead to an appropriate framework for VC investment”.

Originality/value – This paper has made three key contributions. First, it has provided comprehensive insights into how institutional barriers constrain the VC investment in a developing country. Second, a new stage-wise model is proposed for analysing the VC investment process. Third, existing knowledge about the role of both formal and informal institutions in the VC investment is extended.

Keywords Venture capital, Institutional theory, Developing countries, Technology-based small firm

Paper type Research paper

1. Introduction
Technology-based small firms (TBSFs) have an important role in job and wealth creation, promotion of national competitiveness and, consequently, economic development of each country (Bozkaya and Van Pottelsberghe De La Potterie, 2008; Cassar, 2004; Storey and Tether, 1998). However, the challenge of financing has provided several barriers in their
path to growth (Bozkaya and Van Pottelsberghe De La Potterie, 2008; Carpenter and Petersen, 2002; Guijarro *et al.*, 2009; Hall, 2010; Hyder and Lussier, 2016; Klonowski, 2012; Mason and Kwok, 2010; Storey and Tether, 1998; Ur Rehman, 2016), as TBSFs offer novel products that have no or little market history for evaluation (Berger and Frame, 2007; Peneder, 2008; Revest and Sapio, 2012; Storey and Tether, 1998). Moreover, several ambiguities exist in the business environment and market dynamics (e.g. size and share) of TBSFs that lead to high uncertainty concerning the return rate of investment (Berger and Udell, 1998; Carpenter and Petersen, 2002; Gompers and Lerner, 2004; Hall and Lerner, 2010). Accordingly, development of the VC industry is pursued in the entrepreneurship and innovation policies of many developed and developing countries (Hain *et al.*, 2016; Kortum and Lerner, 2000).

VC funds are the financial intermediaries that finance small innovative firms in the form of equity. They not only finance but also play an active role in managerial affairs (Gompers and Lerner, 2001; Vanacker *et al.*, 2014; Hain *et al.*, 2016; Metrick and Yasuda, 2011). They appoint key industry expertise to the boards and body of TBSFs and offer complementary contracts to modify the firms’ governance structure (Cumming and Johan, 2013; Cumming, 2005; Vanacker *et al.*, 2014). VC funds typically exit their investees through various mechanisms, including initial public offerings (IPOs), acquisition exits and buybacks after a period of five to seven years to retrieve capital for new investments (Cumming *et al.*, 2006; Metrick and Yasuda, 2010).

Despite the large amount of VC investment in developed countries (e.g. the USA), VC investment in many developing countries is neglectable. For example, the total VC investment in Middle Eastern and North African countries (including Iran) was less than $1bn (i.e. $992m) in 2015 [MENA Private Equity Association (MENAPEA), 2016], compared with the annual investment equal to $72.3bn in the USA in 2015 (Ernst and Young, 2016). According to the Iranian VC Association (IRVC), the VC investment in Iran was less than $30m in 2016. Thus, there exists a large gap in the VC investment between developed and developing countries. Furthermore, a similar gap in research on VC investment challenges is noticed (Peneder, 2008; Vanacker *et al.*, 2014; Dossani and Kenney, 2002; Fan *et al.*, 2012). In Iran, almost no concise research has been accomplished to investigate the barriers to VC financing activities. Therefore, this paper aims at addressing the cited gap in Iran. Findings can be applicable for similar developing countries.

Many scholars have emphasized the superiorities of the institutional theory as a conceptual framework to explore the challenges of VC financing (Ahlstrom and Bruton, 2006; Bruton and Ahlstrom, 2003; Bruton *et al.*, 2002; Cumming *et al.*, 2010; Dossani and Kenney, 2002; Fan *et al.*, 2012; Hain *et al.*, 2016; Karaomerlioglu and Jacobsson, 2000; Lerner and Tag, 2013; Lingelbach, 2015; Scheela and Jitrapanun, 2012). In the institutional approach, the extent to which TBSFs have access to VC financing is attributed to the institutions. “Institutions are the rules of the game in society or, more formally, are the humanly devised constraints that shape human interaction” (North, 1990, pp. 3–5). Moreover, North (1991, p. 97) states, “Institutions consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, and property rights).”
Going through the literature (Ahlstrom and Bruton, 2006; Bruton and Ahlstrom, 2003; Bruton et al., 2009; Cumming, 2005; Hain et al., 2016; Hall, 2010; Karaomerlioglu and Jacobsson, 2000; Lerner and Tag, 2013; Peneder, 2008; Scheela and Isidro, 2008; Scheela and Jittrapanun, 2012), it appears that VC underinvestment in Iran is largely attributable to the lack of efficient institutions (Schwab, 2016; Dutta et al., 2016). Hence, the current paper is organized in the following sections to address the question, “How institutional barriers constrain the VC financing in Iran?” The literature is reviewed in Section 2. The research methodology is presented in Section 3. In Sections 4 and 5, results are reported, discussed and concluded.

2. Theoretical background
2.1 Institutions, VC and TBSFs in Iran
Based on the World Economic Forum (WEF) report in 2016, Iran ranks 94 among 140 countries concerning institutional development (Schwab, 2016). Moreover, in the Global Innovation Index report in 2016, Iran ranks 112 among 128 countries considering the quality of institutions (Dutta et al., 2016). There seems to exist some special institutional characteristics that differentiate the financial environment in Iran:

- The government budget is substantially dependent on the natural resources (such as oil and gas). Moreover, the ratio of governmental budget to gross domestic product (GDP) is about 70 per cent[1]. It suggests the high share of the government in the economy, e.g. main big enterprises in Iran are state-owned.
- A large share of economic activities are informal and non-transparent, i.e. informal sources of financing are significant in small and medium-sized enterprise (SME) financing, as many other developing countries (Ayyagari et al., 2012; Hyder and Lussier, 2016).
- The World Bank Group (2016) ranks Iran 118 among 189 countries in ease of doing business and the International Monetary Fund (IMF, 2016) reports Iran as the tenth highest inflation rate country. Moreover, based on the WEF (2016), Iran ranks 134 among 140 in financial market development index.

Apart from the abovementioned facts and figures, the financial system in Iran is mainly dependent on banks financing[2], i.e. “relationship-based”[3]. Such systems survive in environments in which laws are poorly drafted, contracts are not enforced and transactions are largely self-governing. In contrast, the preconditions for the viability of a “market-based” system are the prompt and unbiased enforcement of contracts by courts and transparency as a guarantee of protection. In a market-based system, TBSFs can acquire financing more easily as the institutions develop because physical collateral is less important, whereas intangible assets and future cash flow can be financed (Rajan and Zingales, 2001). Therefore, such financial systems will have a comparative advantage in financing TBSFs. Such differences in institutional specifications can justify the large gap in VC industries between market-based (e.g. the USA and the UK) and relationship-based (e.g. Germany and many developing countries such as Iran) systems. In the current research, we seek to explore how institutions constrain the development of the VC industry in Iran. To inaugurate the research, evolution of the VC industry in Iran is briefly overviewed first.

The first attempts to formation of the VC industry in Iran date back to the beginning of the twenty-first century. The Iranian government cabinet passed the act underlying the formation of “non-governmental research and technology funds (RTFs)” in 2001 (IPRC, 2015). RTFs are public–private partnership financing agents that fund TBSFs in the form of
equity and/or debt mechanism. Since 2002, 32 RTFs have been established, 18 of which with more experience in TBSF financing are the members of the IRVC. The IRVC, founded in 2012, has 52 members[4] (including 14 private VC funds, seven business angels and six accelerators along with 18 RTFs). According to the IRVC, nearly $150m were funded by the members in 2016, whereas their share of VC funding is only 18 per cent.

In 2010, the law entitled “supporting the knowledge-based firms” passed through the Iranian parliament. Since then, more than 3,500 firms have been entitled to receive the supports provided in the law (i.e. tax exemption, financing, preferred tariffs and [...] ), 93 per cent of which are small firms with fewer than 50 employees. To prepare the ground for financing such firms, the governmental “Innovation and Prosperity Fund (IPF)” was approved by the cabinet in 2012. In 2014, IPF formally launched its financial services with a budget of $1bn dollars and the mission of supporting TBSFs through financing (loan and/or VC financing). By October 2016, the IPF had provided $280m to TBSFs through loans and no VC financing activity was enforced by 2017 (UNCTAD, 2016).

In 2016, the Iranian “Securities and Exchange Organization (SEO)” approved the regulation to establish technology-based private equity funds (PEFs). Such PEFs can easily offer TBSF stocks through the SEO. By 2017, 12 technology-based PEFs have been approved by the SEO, two of which have recently started funding TBSFs. A summary of the VC industry evolution in Iran is reported in Table I.

Despite the mentioned efforts, VC investment in Iran has been very low. UNCTAD (2016) estimated the VC financing in Iran to be $340m from 2005 to 2015. Moreover, based on WEF reports, Iran ranks 125 among 140 in the index of access to VC (Schwab, 2016). Therefore, the abovementioned facts reveal that, despite the governmental interventions (through formation of numerous VC funds), VC investment in Iran confronts many barriers. This issue is thoroughly discussed in the following section.

### 2.2 VC and institutions

Regular and intimate transactions among stakeholders is a critical success factor in the VC investment process (Becker and Hellmann, 2005; Hain et al., 2016; Shepherd and Zacharakis, 2001). However, such an interaction involves a high degree of uncertainty that originates

<table>
<thead>
<tr>
<th>Effort</th>
<th>Managing agency</th>
<th>Year</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>The act underlying the formation of RTFs</td>
<td>Government cabinet</td>
<td>2001</td>
<td>Establishment of 32 RTFs from 2002 to 2016 that can fund TBSFs in the form of equity and/or debt mechanism</td>
</tr>
<tr>
<td>Foundation of Iranian VC Association (IRVC)</td>
<td>Private sector</td>
<td>2012</td>
<td>IRVC now has 52 members, including 18 RTFs, 14 private VC funds, 7 business angels and 6 accelerators</td>
</tr>
<tr>
<td>Approval of the governmental “Innovation and Prosperity Fund (IPF)”</td>
<td>Government cabinet</td>
<td>2012</td>
<td>The initial capital by its mandate is $1bn, part of which should provide access to TBSFs through a VC mechanism. However, by October 2016, the IPF had provided $280m to TBSFs, all through debt mechanisms</td>
</tr>
<tr>
<td>Regulation of establishing technology-based PEFs</td>
<td>Iranian Securities and Exchange Organization</td>
<td>2016</td>
<td>By 2017, 12 technology-based PEFs have been approved by SEO, two of which have recently started funding TBSFs</td>
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Table I. Selected VC-related national efforts in Iran (provided by the authors)
from “incomplete information” and “limited capability to interpret such information” (Knight, 1921), leading to high information asymmetry between the parties (e.g. investor and investee). In turn, this asymmetry results in adverse selection at the inception stage and moral hazard in the investing and monitoring stage of collaboration (Hain et al., 2016; Hall, 2010; Klonowski, 2006; Lerner and Tag, 2013). Peneder (2008), like many other scholars (Berger and Udell, 1998; Carpenter and Petersen, 2002; Cumming, 2005; Gompers and Lerner, 2001; Hall, 2010; Hall and Lerner, 2010; Klonowski, 2012; Klonowski, 2006; Metrick and Yasuda, 2010), counts adverse selection and moral hazard as the main barriers to creating a relationship between VC funds and TBSFs. However, he did not explain how the institutions affect such relationships. Although VC funds try to manage the adverse selection and moral hazard problems (Bergemann and Hege, 1998; Lerner and Tag, 2013; Shepherd and Zacharakis, 2001) through detailed screening processes and due diligence (Bruton and Ahlstrom, 2003; Fried and Hisrich, 1994; Mason and Stark, 2003), signing deterrent contracts (Cumming, 2005; Hellmann, 1998; Kaplan and Stromberg, 2003), staged funding (Bergemann and Hege, 1998; Gompers, 1995) and planning efficient governance structures (Cumming and Johan, 2013; Hellmann, 1998), the institutional environment determines the effectiveness of such efforts.

Going through the body of knowledge on the role of institutions in the VC process reveals that some scholars have provided a holistic framework to present the role of institutions on the VC process. Bruton and Ahlstrom (2003) for China, Bruton et al. (2009) for Latin American countries, Karaomerlioglu and Jacobsson (2000) for Sweden, Ahlstrom and Bruton (2006) for East Asia emerging economies, Scheela and Van Dinh (2004) for Vietnam, Bruton et al. (2002) for Singapore, Scheela and Isidro (2008) for the Philippines and Scheela and Jittrapanun (2012) for Thailand are the main examples that can be referenced. Some of these scholars have shown how emerging Asian countries replace the informal institutions and networking to reduce transaction costs and govern the relationships in the VC process stages (i.e. selection of firms to fund, structuring and monitoring, value-added efforts and exit) as an appropriate alternative to overcome the weakness of formal institutions. For example, Bruton and Ahlstrom (2003) compared Chinese and Western venture capitalists (particularly in the USA) and argued that in the course of VC investments in China, unlike in the West, the relationship with the entrepreneur is crucial in the selection of firms to fund. Chinese venture capitalists had to monitor firm activities much more closely as a substitute for regulatory controls. Advice to firm managers, as value-added activities, must be provided diplomatically in China. Purchase of a firm by a strategic buyer is more likely (for exiting the firms). Venture capitalists in China also try to develop a network with local Chinese government officials to better manage the local regulatory regime. Such differences between VC efforts in China and the West can be extended to many other Asian countries such as Hong Kong, Taiwan, Thailand, Vietnam, the Philippines and South Korea (Ahlstrom and Bruton, 2006; Scheela and Isidro, 2008; Scheela and Jittrapanun, 2012; Scheela and Van Dinh, 2004). In addition, Latin American economic power is more concentrated than is emerging Asian economic power; the venture capitalists select the firms with more economic power to fund. In such a situation, they have more difficulty in monitoring funded firms and IPOs (Bruton et al., 2009). Karaomerlioglu and Jacobsson (2000) provided a relatively comprehensive framework of institutional barriers to the VC activities in Sweden. They argued that the institutional set-up in an economy should provide access to savings (through allowing pension funds to make substantial investments into VC firms), an incentive structure (through reduction of capital gains, personal income tax rate and providing appropriate governance forms such as limited partnership) and exit possibilities (particularly through IPOs in a developed stock market) for VC funds to develop.
Along with the above studies, there are some scholars who have addressed the role of institutions in the VC activities by focusing on one factor, e.g. tax institutions (Cullen and Gordon, 2007; Cumming, 2005; Keuschnigg and Nielsen, 2004), which can discourage entrepreneurs and VC funds from engaging in technological business ventures or legal institutions such as investor protection and corporate governance (Bergemann and Hege, 1998; Cumming and Johan, 2006; Cumming et al., 2006; Cumming et al., 2010; Cumming and Johan, 2013; La Porta et al., 1998, 2000). Moreover, Lingelbach (2015) investigated the effect of institutional change, rather than institutional factors, on the VC process in emerging economies. He found that formal institutional change (both improvement and decline) positively affects the VC development process. Higher institutional instability generates more stocks of opportunity and stronger public–private cooperation that encourage VC investments.

There is a consensus among researchers that the VC financing is highly affected by institutional set-up. However, few scholars address the institutional barriers that constrain VC investments in different stages by using a comprehensive and integrated approach. Moreover, to date, the case of Iran as a developing country in the Middle East has not been studied. To fill the mentioned gap, the current study seeks to explore the institutional challenges of VC investment in Iran.

3. Methodology
In the current research, the explorative approach has been adopted (Shields and Rangarajan, 2013) to address the research question previously stated in Section 1. Because the research is exploratory in nature, the grounded theory (GT) approach is used to explore the institutional barriers that constrain the VC financing process in Iran. Glaser and Strauss (1967, p. 1), the founders of the GT research method, state,

Most writing on sociological method has been concerned with how accurate facts can be obtained and how theory can thereby be more rigorously tested. (But) we address ourselves to the equally important enterprise of how the discovery of theory from data – systematically obtained and analysed in social research – can be furthered.

In this research, the Glaserian (Glaser, 1978, 1992) approach of the GT is adopted. This approach relies on the emergence of theory from the data but is based on the researcher’s interpretation. Indeed, in the Glaserian approach, data hold the central role, and the researchers’ knowledge provides additional material. Furthermore, in this approach, the theory is discovered rather than constructed based on a predetermined framework (Heath and Cowley, 2004).

In this research, a purposive sampling approach was followed in sample selection and subsequent follow-up. This approach calls for selecting participants with specific characteristics (Lincoln and Guba, 1985). Data were collected through 31 face-to-face, in-depth, semi-structured interviews lasting 1 h and 10 min on average. Because the research subject is multidimensional, the interviewees are selected from different stakeholders in the VC industries to ensure that a range of different interviewees with different experience and viewpoints have participated in building the GT. Table II shows the diversity in the sources of data collected through interviews.

To ensure the validity of the research, after all interviews, the interpreted data were returned back to the interviewees to confirm whether these findings were all that they meant. Moreover, in line with Fried and Hisrich (1994), in each interview, replication logic (Eisenhardt, 1989) was adopted. In this strategy, information from the previous interviews was presented to the next interviewee for further validation. The interviews were continued
up to the point that the incremental findings derived from the field research showed features of diminishing incremental information and saturated categories (Glaser and Strauss, 1967).

To answer the research question, the data were analysed consistent with the Glaserian GT in three coding stages (i.e. open coding, selective coding and theoretic coding). Previously, Solhi and Rahmanian Koshkaki (2016) adopted this method to explore the influence of the social and business contexts on innovative behaviour leading to entrepreneurship in Iran. The coding stages overlap considerably and thus are not considered separately but rather undertaken simultaneously for the study (Glaser, 1978, 1992).

Open coding, which serves to open up the data, is done on a line-by-line basis and ceases when the core concepts and the major categories are identified (Glaser, 1978, 1992). The core concept is then selectively coded for the next coding stage. Possible causal relationships between variables suggested by institutional theories were noted on memos. Finally, once the categories of institutional constraints reached saturation, theoretical coding seeks to provide explanations for these relationships based on theoretical codes (Glaser, 1992).

To collect and analyse the data, researchers start with minimalist a priori constructs, which inquires deeply into a substantive issue and iteratively forms and evaluates theoretical constructs through constant comparative analysis of the qualitative empirical data. The literature was used often at the ending stages of the research as the additional theoretical data to improve the theoretical level of the model. Finally, the GT model was reviewed by four experts for final validation of the model. The schematic depiction of the research process is presented in Figure 1.

4. Results
In the course of the data gathering process, all interviews were reviewed and the quotations were coded into conceptual propositions (open coding). In an iterative analytical process, the

<table>
<thead>
<tr>
<th>Data resource group</th>
<th>No. of interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Entrepreneur/Manager of TBSFs</td>
<td>10</td>
</tr>
<tr>
<td>2 Venture capitalists</td>
<td>8</td>
</tr>
<tr>
<td>3 Experts in TBSF financing</td>
<td>7</td>
</tr>
<tr>
<td>4 Policymakers</td>
<td>6</td>
</tr>
<tr>
<td>Sum</td>
<td>31</td>
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Table II. Diversity in the source of data collected through interviews

Figure 1. Schematic depiction of the research process based on the Glaserian GT approach (proposed by the authors)
propositions were organized in 13 primary categories and five secondary categories (selective coding). The secondary categories actually represent the stages of the VC process as follows:

1. fund raising;
2. identifying and evaluating the investment opportunities;
3. negotiating and contracting;
4. executing the collaboration and monitoring; and
5. exiting VC investments.

4.1 Fund raising
VC funds raise their required capital from wealthy individuals, insurance companies, pension funds, banks, foundations and other sources of savings. However, in Iran, the mentioned sources are not dedicated to VC funds due to the institutional barriers mentioned next.

4.1.1 Lack of appropriate financial regulations. VC funds are not known as financial intermediaries in Iranian financial regulations. VC managers claim that,

Monetary regulations of the Central Bank of Iran (CBI) and financial regulations of the Securities and Exchange Organization (SEO) do not legally support fundraising in VC funds. Therefore, VC funds can only rise the required funds through bank loans or shareholders equity.

4.1.2 Inefficacy in tax regulation. VC managers also claim that,

If an individual deposits its money in the banks, he/she will receive (20-30) per cent which is tax free interest rate annually. Conversely, in the case of put the money into a VC funds, the profit that may gain from the VC fund is not tax free. Moreover, many VC fund managers said,

If a VC fund raises the external financial resources to invest in a portfolio of technology-based projects, the interest paid to external investors is not considered an acceptable cost by the Iranian Tax Organization (ITO). Therefore, the cost of capital cannot be a tax shield in Iran. Because the financial intermediaries such as VC funds (Metrick and Yasuda, 2011) are not legitimized in most developing countries’ ecosystem (e.g. India; Dossani and Kenney, 2002), they are not supported through tax exemptions.

4.2 Identifying and evaluating the investment opportunities
VC funds largely decide based on the financial information provided in the business plan/financial statements and choose their financing options (Bruton and Ahlstrom, 2003; Mason and Stark, 2003). In other words, good accounting regulation and high-quality information facilitate the investment decision process (Ayyagari et al., 2012). In such a situation, the issue of adverse selection is rarely encountered and venture capitalists will spend less time to identify and evaluate the investment opportunities (Jeng and Wells, 2000). However, the existing institutional deficiencies in Iran make economic activities non-transparent and informal. Therefore, the evaluation of the investment opportunities will be difficult. The institutional barriers that constrain the evaluation of investment opportunities in Iran are presented next.

4.2.1 Weakness in financial disclosure regulations and skills. Several experts in VC funds acknowledged that,
The due diligence process in Iran is time consuming and difficult. Almost no TBSF can provide a concise business plan and financial statement report. Entrepreneurs and managers of SMEs are not skilled enough in financial affairs such as preparing business plans and financial statements. In our education system, both schools and universities, such skills are ignored. However, even if such reports are prepared, they cannot be reliable for investors.

In contrast to developed countries in which financial and accounting reports are of high quality (Ayyagari et al., 2012), in developing countries such as Iran, disclosing corporate/project financial information is too weak (Klonowski, 2006; Klonowski, 2012). In Iran, precise corporate financial statements are rarely accessible, the accounting routines and standards are not well-developed and the information in the business plan is not highly reliable. Such deficiencies along with the weakness in financial auditing institutions that provide reliable financial reports for investors can be noted as the main obstacle that constrains evaluating the investment project for the VC funds.

4.2.2 Inefficacy in tax and labour regulations. The main reasons for economic and financial non-transparency in Iranian business enterprises are inefficient tax regulation and labour law. TBSF CEOs stated,

I prefer to keep the corporate financial information secret since the tax system is in favour of non-transparency. When a company is financially transparent, it must pay more taxes (including business tax, value added tax and social security tax). Hence, it cannot compete with informal suppliers or importers who escape tax payment.

Moreover, they stated,

Formal employment of a workforce in Iran is costly. Equal to 30 per cent of each monthly payment to workers is paid as social security taxes. Moreover, in some cases, in addition to the above-mentioned payments, 16.67 per cent of each formal sale contract should be paid to social security system. Such costs are intolerable for all SMEs[...]. On the other hand, minimum wage law raises the cost of hiring seasonal workers and running new formal projects and plans.

It means that TBSFs prefer the non-transparency to be excluded from paying the tax. Moreover, they are reluctant to formally hire the required workers.

4.2.3 Cultural (informal) barriers. The existing informal rules of the game and routines are among the barriers towards economic transparency and hence evaluating the investment opportunities in Iran. An entrepreneur said,

In Iranian culture, capital accumulation habit is highly disapproved by the general public. That’s why capitalists and private owners of big enterprises do not disclose their financial assets and avoid to involve in investment projects which entails transparency.

At the same time, VC fund CEOs believe that,

Information disclosure laws and establishment of financial databases do not realise due to several obstacles since the culture of secrecy is prevalent in the society.

In some Asian countries, networks function as effective informal institutions to acquire information about the business ventures (Ahlstrom and Bruton, 2006; Bruton and Ahlstrom, 2003; Scheela and Jitrapanun, 2012). However, networking mechanisms in Iran are not yet well-established because the formation of networks entails high degrees of social capital, which is low in Iran[5].

4.3 Negotiating and contracting
The third stage for a VC fund is to negotiate the details of partnership structure. The institutional challenges that arise at this stage are mentioned in the following subsections.
4.3.1 Inefficacy in governmental policies. Several investors and policymakers refer to inefficient government supports as the main obstacle in the relationship between VC funds and TBSFs at the stage of negotiation and contract:

Technology-based firms and entrepreneurs have access to grants and soft loans from different governmental sources. The nominal interest rates of such loans are much lower than are normal business loans and the inflation rate. Such loans are paid without depositing any collateral. TBSFs are not even obliged to pay back the loan. In the case of such interventions with an inundation of rentier financial resources, almost no entrepreneur or TBSF will refer to or negotiate with private venture capital funds.

Based on findings from interviews, in Iran, the rentier public resources are much preferred to private VC funds owing to lack of efficient institutions and structures as follows:

- Government lacks agents with expertise or efficient rules to evaluate the received investment plans. Thus, owners of non-feasible plans prefer to apply for governmental resources. Furthermore, the government is incapable of efficiently supervising the process of investment. It is quite evident that investees prefer easy-going loans to strict partnership with VC funds.
- A low loan interest rate has made such loans attractive and rentier.
- According to Iranian tax regulation (clause 49, direct tax law), the interest rate of governmental (bank) loans paid by clients is viewed as an acceptable corporate cost, whereas the dividend profit paid to the investors undergoes a 25 per cent tax. Consequently, the loan is much preferred by the investees. Fan et al. (2012) suggested that firms are mostly inclined to more debt when a tax gain from leverage is greater.
- TBSFs have access to rentier governmental loans with no need to provide collateral. Therefore, they will not easily repair their loans.
- Bankruptcy law in Iran is ineffective. Vanacker et al. (2014) claim that entrepreneurs in countries with strict bankruptcy law have lower tendencies to finance their business through loans. They prefer to make partnerships with VC funds instead. However, in countries with inefficient bankruptcy laws such as Iran, entrepreneurs prefer to apply for loans because they will not face severe punishment if they go bankrupt.
- Entrepreneurs in Iran believe that access to the rentier governmental resources is their decisive right. Direct supply of governmental budget to entrepreneurs, rather than making partnerships with VC funds, has damaged the relationship between entrepreneurs and VC funds. VC fund CEOs believe that,

Innovation policies in Iran have caused illogical expectations in entrepreneurs. They believe that it is their decisive right to access the rentier governmental financial resources.

4.3.2 Weakness in collective actions. Weak collectivism culture among entrepreneurs make negotiating and contracting much more difficult. Some VC fund CEOs said,

Entrepreneurs only emphasize technological aspects and cannot understand the managerial concerns of investors. They have individualistic characters and believe that they can fulfil the business creation process in person, with reliance on their technological capabilities. So, they overestimate their technological assets and underestimate the managerial skills, market development capabilities and investment capacities of the newcomer partners. This makes compromise much more difficult.
4.3.3 Weakness in legal and judicial regulation. Weak legal and judicial regulation leads to weak financial tools for VC financing. TBSF CEOs stated,

Entrepreneurs are not well skilled. At the same time, VC funds are not equipped with tools and routines for partnership in technological plans. Financial organisations in Iran are not risk-taking. They look for investment schemes with guaranteed payback. They mainly rely on collateral and do not accept the intangible assets as the investment/loan collateral.

Managers of financial institutes justify the weakness of underdevelopment in tools and standards of VC financing as follows:

The underlying law on firm registration and corporate governance in Iran is so faulty that legal partnerships can hardly be formed [...]. Lack of law on registration and administration of consortiums and joint ventures does not let the VC fund start a project partnership [...]. However, in the case of devising efficient partnership tools and contracts, courts and other legal/judicial referee institutes do not advocate [for] any parties to retrieve the missing rights.

Thus, legal and judicial infrastructures support the development of financial partnership tools.

4.4 Executing the collaboration and monitoring
Previous studies have focussed on the issue of moral hazard to investigate the challenges in this stage (Hain et al., 2016; Hall, 2010; Klonowski, 2006; Lerner and Tag, 2013; Mitnick, 2013; Peneder, 2008). The investors try to control the issue of moral hazard through enforcement of legal control and strengthening their supervision. However, in countries with a low-quality institutional set-up, the VC funds are not capable of accessing precise information about the firm and hence cannot affect the business structure (Bruton and Ahlstrom, 2003). In the following subsections, the major institutional challenge in this stage is discussed for the case of Iran.

4.4.1 Weakness in investor’s protection laws, bankruptcy law and enforcement of contract. VC funds will resort to severe contracts with TBSFs to prevent probable abuses (Cumming and Johan, 2013; Shepherd and Zacharakis, 2001). However, it is impossible to predict all probable future conflicts in the contracts owing to high uncertainty in TBSF activities (Bruton and Ahlstrom, 2003; Hart, 1995; Vanacker et al., 2014). In such cases, referring to laws and regulations underlying investors’ rights is inevitable. Moreover, even in the case of signing a precise contract, weak legal institutions prevent its full enforcement (Fan et al., 2012). Almost all interviewed investors acknowledge that in the case of entrepreneur abuse, they can hardly exercise their rights through the judicial system:

If one refers to the courts or other judicial institutes, it takes more than 2 years to pass the bureaucratic procedures [...] it is rooted both in corrupted and inefficient judiciary system [...] which imposes low cost on violation of commitments.

As extensively explored by La Porta et al. (1998), the extent to which contracts can be used to mitigate these problems depends on the legal system, i.e. content of laws and the quality of their enforcement. In an atmosphere in which contracts are not fully enforced and the legal institutions do not support investor rights, the issue of moral hazard will intensify (Fan et al., 2012; Hain et al., 2016; La Porta et al., 1998, 2000). Conversely, development of PEF is positively related to institutional support for investor rights (Groh et al., 2010).

Bankruptcy law is another formal institution investigated by some scholars (Becker and Hellmann, 2005; Vanacker et al., 2014). Severe individual bankruptcy law prevents bankrupt entrepreneurs from obtaining sufficient credit in the future (Vanacker et al., 2014). In such cases, the entrepreneurs will do their best to keep their existing business because
bankruptcy will thoroughly end their business life. This point is consistent with investor objectives, which are to prevent the investees from possible abuses. Note that investors mostly involve the entrepreneurs in corporate debt and choose to prevent entrepreneur abuse.

4.4.2 Weak property rights and labour regulations. In Iran, property rights institutions are weak and immature, which is the underlying reason that entrepreneurs complain about their property rights protection in the process of partnership with investors:

Even registration of property rights cannot prevent the investors from free application of our disclosed knowledge.

Hence, in the case of an inefficient property right system, entrepreneurs prefer bank loans to keep their ideas well-protected. Meanwhile, VC funds are worried about their property rights when investing in a TBSF. This issue is also related to weakness in labour force regulations in Iran:

We [the VC funds] undergo high cost and spend several years to develop technological ideas and to train high-skilled human resources in a TBSF. Skilled managers and experts may leave the firm after the technological idea were successfully developed. Moreover, large companies may hire skilled human resources in return for a bit higher salary. The labour law and property rights regulations do not support investors against the mentioned challenges.

The labour regulation in Iran is such that firms will face much difficulty to keep talented experts because employers are not supported with laws that impose high costs on job switching. That is, experts can easily exit his/her current job with technological skills and business secrets obtained during the employment period facing almost no penalty or cost.

4.4.3 Weakness of managerial skills and trust between parties. Dhochak et al. (2016) prioritized the key factors influencing venture capitalists’ investment decisions in the Indian context. They stated,

Before deciding to invest in a new venture, venture capitalists thoroughly scrutinize the entrepreneur’s personality and experience to ensure that the entrepreneur has the characteristics and qualities required to thrive in the competitive business world. (Dhochak et al., 2016, p. 977).

However, technological entrepreneurs and managers of TBSFs in developing countries (such as Iran) lack the required skills and knowledge, in the area of business development (including marketing, human resource management, accounting and finance) (Becker and Hellmann, 2005; Bruton and Ahlstrom, 2003; Hyder and Lussier, 2016). The interviewees emphasize that,

Entrepreneurs are skilled in technical and technological aspects. However, they cannot handle the managerial, financial and market issues. They have low skills in business development and management. Teamwork skills are also lacking [...]. Such talents have been ignored in both schools and university educations.

However, in the case of weakness in formal institutions and managerial/teamwork skills, informal socio-cultural institutions such as trust and social networks will support successful partnerships (Bruton and Ahlstrom, 2003; Hain et al., 2016; Scheela and Jittrapanun, 2012). In Iran, such norms and socio-cultural institutions do not work efficiently; hence, the collaborations do not form properly (Ferasatkhah, 2015).

4.5 Exiting VC investment
Exit from the technology-based firm is the last stage of the VC process. Because VC funds tend to make a higher profit from TBSFs, they seek the best exchange platform at the exit
stage. VC funds normally exit the TBSFs through IPOs, selling the stocks to other investors and funds or selling the stocks to the primary entrepreneurs (Cumming et al., 2006; Metrick and Yasuda, 2010). However, in Iran, the exchange platforms are not working efficiently because of below-mentioned reasons.

**4.5.1 Equity undervaluation due to non-transparency.** It was fully explained previously how non-transparency makes difficulties in the second stage of the VC process (i.e. the evaluation of the VC opportunity). At the same time, transparency is also critically important at the exit stage for VC funds:

Even in the case of success in business development, agreement on exit will face several challenges. The issue of valuation is the main challenge. Mostly, even entrepreneur and investor cannot come to a fair agreement.

Because valuation of firm stocks requires high standards of financial and market transparency, terminating the relationship will be problematic in the event of non-transparency.

**4.5.2 Capital market underdevelopment.** A common exit strategy adopted by VC funds is an IPO in the capital market. In the USA, NASDAQ Small Cap is a great facilitator of profitability of VC financing through successful exit (Carpenter and Petersen, 2002; Jeng and Wells, 2000). Several scholars (Becker and Hellmann, 2005; Revest and Sapio, 2012) have mentioned that lack of such efficient markets is a barrier to rapid growth and development of the VC industry. Moreover, in Iran, “immaturity of the stock market in preparing the ground for IPOs hinders the valuation and exit process”, as some interviewees said.

5. **Discussion and conclusion**
Investigating the barriers to VC financing in each country entails deep understanding of its local institutional framework. However, to date, the existing body of knowledge about the barriers to VC financing in Iran lacks an integrative and holistic model in which all of the “critical institutional factors” are considered. To overcome the mentioned gap, the current study adopted an institutional approach to review the challenges that exist in different stages of VC financing in Iran. We focused on five stages of VC process, derived from data analysing, to categorize the institutional barriers that constrain the VC investment in Iran as:

1. fund raising;
2. evaluation;
3. negotiation;
4. execution and monitoring; and
5. exit.

Several scholars have previously adopted similar, but not the same, stages for the VC process in the literature (Gompers and Lerner, 2001; Klonowski, 2010). The concluding remarks are presented in Table III.

Previous studies (Berger and Udell, 1998; Carpenter and Petersen, 2002; Cumming, 2005; Gompers and Lerner, 2001; Hain et al., 2016; Hall, 2010; Hall and Lerner, 2010; Klonowski, 2012; Klonowski, 2006; Metrick and Yasuda, 2010; Peneder, 2008) referred to information asymmetry (which leads to adverse selection and moral hazard) as the main challenge in the VC investment process. However, the current study presents a comprehensive model that shows the barriers to VC investment are beyond the information asymmetry among stakeholders.
Concerning policy implications, the current research findings imply that reforming the following institutional factors is necessary in socio-economic policies to overcome the barriers: tax and financial regulations, information disclosure institutions, SME supporting regulations, financial and legal tools for corporate venturing, corporate governance regulations, property rights regulation, investors' protection law, bankruptcy law, education system and stock market regulation.

Thus, many institutional factors have led to a gap in VC investment in Iran as a developing country. However, filling this gap is more complicated than simply establishing new VC funds (governmental or non-governmental). Such a wrong approach has been previously adopted by other countries such as Germany (Becker and Hellmann, 2005), France (Dubocage and Rivaud-Danset, 2002) and Italy (Bertoni et al., 2007). In other words, the missing elements are not merely VC funds (governmental or private) in Iran. The solution is an institutional set-up that facilitates the VC process. Government has a critical role in creating such a set-up. It would be better to remove the wrong interventions first. As mentioned earlier, in Iran, the government not only hampers the VC investment but also disturbs the private VC funds through wrong interventions. Iranian governmental supportive policies such as soft loans and loan guarantee schemes are not effective even when they are efficiently designed and enforced. In accordance with this finding, Peneder (2008, p. 528) states, “If public resources displace funds from private investors, they not only waste the public resources but also inhibit the development of a mature and self-supporting venture capital market.” Therefore, it is urgent that these policies be revised (Bozkaya and Van Pottelsberghe De La Potterie, 2008; Peneder, 2008).

To build the appropriate institutional set-up for VC investment, we should begin our reforms with consideration of the institutions’ path dependency, which stresses incremental changes in institutional reforms (North, 2003). Thus, we seek to apply

<table>
<thead>
<tr>
<th>VC stage</th>
<th>Institutional barriers (formal)</th>
<th>Institutional barriers (informal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund raising</td>
<td>Lack of appropriate financial regulations</td>
<td>Culture of capitalism disapproval</td>
</tr>
<tr>
<td></td>
<td>Inefficacy in tax regulation</td>
<td>Culture of secrecy</td>
</tr>
<tr>
<td>Identifying and evaluating the investment opportunities</td>
<td>Lack of financial disclosure regulations and credit rating system</td>
<td>Weakness of social capital</td>
</tr>
<tr>
<td></td>
<td>Inefficacy in tax and labour regulations that encourage the informal economic activities</td>
<td>Weakness of financial skills of entrepreneurs</td>
</tr>
<tr>
<td>Negotiating and contracting</td>
<td>Inefficacy in governmental policies</td>
<td>The culture of over-expectation</td>
</tr>
<tr>
<td></td>
<td>Weakness in legal and judicial regulation that leads to weak financial tools for VC financing</td>
<td>Weakness in collectivism culture (individualistic customs)</td>
</tr>
<tr>
<td>Executing the collaboration and monitoring</td>
<td>Weakness in property rights regulations</td>
<td>Weakness of managerial skills of entrepreneurs</td>
</tr>
<tr>
<td></td>
<td>Weakness in labour regulations</td>
<td>Weakness of trust among parties (individualistic customs)</td>
</tr>
<tr>
<td></td>
<td>Weakness in investor’s protection laws, bankruptcy law and contract enforcement</td>
<td></td>
</tr>
<tr>
<td>Exiting VC investments</td>
<td>Lack of financial disclosure standards and regulations</td>
<td>Culture of capitalism disapproval</td>
</tr>
<tr>
<td></td>
<td>Capital market underdevelopment</td>
<td>Culture of secrecy</td>
</tr>
</tbody>
</table>

Table III.
Institutional barriers to VC investment in Iran (proposed by the authors)
incremental institutional evolutions that lead to an appropriate institutional framework for VC investment.

Notes
1. In 2014, the GDP of Iran was about US$425bn, and the total governmental budget of Iran was about US$290bn (by official exchange rate).
2. Based on statistics of the Central Bank of Iran (CBI), the value of banks asset in 2013 is about 140 per cent of GDP, whereas the value of the stock market is 40 per cent of GDP.
3. Relationship-based financial systems are defined versus market-based.

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Further reading

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Barriers to graduate employment and entrepreneurship in Nigeria

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Abstract

Purpose – This paper aims to investigate the challenges faced by Nigerian university graduates youths, in finding suitable employment or in embarking on entrepreneurship ventures.

Design/methodology/approach – The research investigates the barriers to graduate employment and entrepreneurship in Nigeria starting from the hypothesis that there are other factors besides scarcity of jobs responsible for unemployment in Nigeria. Data from two qualitative research activities were analysed and the results tested, to determine the extent to which the research findings supported the initial hypothesis.

Findings – The findings confirm the researcher’s hypothesis that there are a number of factors, the two main ones being poor government policy and investment in education and low skills and technical incompetence of graduates, which constitute barriers to employment and entrepreneurship in Nigeria.

Practical implications – The findings are clear on the urgency to revisit the Nigerian education and skills curricula and its capacity to facilitate employment and entrepreneurship, and government policy-making in this regard.

Originality/value – This study bases its recommendations for addressing Nigeria’s high graduate unemployment on empirical direct engagement with the primary stakeholder, that is, the Nigerian graduate. It clearly identifies that it is not merely scarcity of jobs but a myriad of factors requiring the urgent attention of both public and private sectors that constitute barriers to graduate employment and entrepreneurship in Nigeria.

Keywords Emerging economies, Graduates, Government, Higher education, Entrepreneurship education, Entry barriers

Paper type Research paper

1. Introduction

Nigeria has a high number of young people, and is sub-Saharan Africa’s most populous country. It is, depending on who is speaking, Africa’s strongest economy, a position, which can be debated, that alternates with South Africa. It has, despite its capacity to diversify, continued a policy of mono-dependency on oil which contributes its largest share of income. The country retains a significantly increasing high rate of unemployment: 23.9 per cent as at January 2012 (Federal Government of Nigeria, 2013a) down to a still high 14.2 per cent as at January 2017 (Federal Government of Nigeria, 2017).

The relevance of education to future employment and entrepreneurship in Nigeria remains relatively under-researched, particularly in terms of exploring what those in or out of education perceive as barriers and challenges. Ihugba et al. (2013, p. 28), cite, amongst a myriad of factors, “low standard of education” as one of the “challenges faced by entrepreneurs in developing countries”. However, an empirical investigation into the career

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intentions of university students who had benefited from a semester course in entrepreneurship found that “entrepreneurship education impacts positively on the career intentions of tertiary education students” (Ekpoh and Eket, 2011, p. 176).

The researcher’s hypothesis is that there are a variety of factors responsible for poor employment and entrepreneurship opportunities in Nigeria, not just the scarcity of available jobs and that some of these factors weigh more heavily on a graduate’s ability to gain employment or engage in entrepreneurship, than others. What was missing from the discourse and policy planning measures for addressing graduate unemployment and the low level of sustained entrepreneurship activity in Nigeria was a verifiable and validated body of research on the issue. This research aims to fill this gap. First, it engages with the primary stakeholder, that is, the Nigerian university graduate, to assess barriers to employment and entrepreneurship. Second, it identifies the myriad of factors which are barriers that have been previously identified in existing literature and tests the relevance of these factors in the Nigerian context. The results of the research are validated by consultation with other stakeholders including education providers in Nigeria. Fourth, the research results dispel a common myth that scarcity of jobs alone is the reason for high graduate unemployment in Nigeria and identifies the urgent need for public–private partnership to address these barriers. The results of the research should be invaluable to drafters of education curricula and policymakers, as it shows what factors need to be tackled if barriers to graduate employment and entrepreneurship in Nigeria are to be addressed effectively.

To test the aforementioned hypothesis, the research project comprised two research activities:

1. Research Activity 1 on education and youth employment (RA1).
2. Research Activity 2 on education employment and entrepreneurship (RA2).

The literature review is set out in Section 2. Section 3 presents an overview of the research framework and the methodology adopted for the research. The results and key findings are presented in Section 4. Section 5 engages in discussion and analysis of the findings, and Section 6 reviews the implications for research, practice and society and limitations of the study. The conclusions are presented in Section 7.

2. Literature review

Given their limited resources, life and work experience, young people face unique constraints and greater barriers than older-age cohorts (Schoof, 2006, p. xii). Studies from the USA for example suggests that “[L]evel of education is the most important factor in identifying entrants into skilled services self-employment; probability of entry rises substantially at each of the higher levels of college education” (Bates, 1995, p. 151). Later a UK research notes that the:

Typical entrepreneur in the UK is white, male, aged 36 years old and possesses a higher education qualification (SBS, 2002) with over 60 per cent of entrepreneurs in the 25-44 years old age bracket. (Robertson et al., 2003).

A study into the effect of education on employment success again from the USA in the 1990s confirmed that contrary to “the myth of the poorly educated entrepreneur” (Robinson and Sexton, 1994, p. 143), “a general education has a strong positive influence on entrepreneurship in terms of becoming self-employed and success” (Robinson and Sexton, 1994, p. 142).
The body of research dealing with entrepreneurship in emerging economies is, on the whole, limited (Bruton et al., 2008; Urban and Ratsimanetrimanana, 2015). However, a review of the literature identified two common approaches to solutions for unemployment and support for entrepreneurship. These include the role of government policies and programmes and the role of education.

2.1 Role of policies and programmes in promoting entrepreneurship and facilitating employment opportunities

Previous studies of resource-rich developing countries with a vibrant youth demographic emphasise the problem of skills shortage and other attendant problems with accessing employment for young people: Timor-Leste (Lundahl and Sjöholm, 2009) and South Africa (Allais, 2012). Similarly in Nigeria where the economy is hugely dependent on oil, the local capacity for jobs or indigenous businesses in the oil industry is also limited by a skills shortage. In a study of the need for human capital in the oil and gas industries in Nigeria, the authors found that local Nigerian universities are not structured to produce competent graduates for the oil industry at a time when Nigeria should be exporting technically competent professionals (Ekebafe et al., 2010).

A study of Banks Creation and Consultants in Nigeria’s Job Program suggests that employment creation can be better attained via a partnership of the private and public sectors (Owualah, 1999). Oni (2012) emphasised the vital role of government policies to complement the efforts made by the private sector although in Nigeria’s case, those policies have not always been successful or sustainable. Most of the programmes were not sustainable owing to poor implementation, financing, constant changes in government and other administrative issues. Incidentally, some of the best early (pre 2008) programmes were of little effect; a study on Operation Feed the Nation, which was designed to facilitate agricultural entrepreneurship, showed that statistically, there were no significant increases in the use of farm input by programme participant and only mild increases in total land area cultivated by farmers (Uwakah et al., 1980).

Effective government policies to advance entrepreneurship and innovation in SMEs are therefore of importance, not least because young firms can be productive and can engineer employment (Demirgüç-Kunt, 2011). There is indeed, a role for both public and private partnership in this regard. Such partnership can assist in creating a conducive environment for employment opportunities and entrepreneurship by, for example, narrowing the information asymmetry between SMEs and financial institutions and encouraging big firms to support small enterprises (Igwe et al., 2013 pp. 96-97).

Countries, especially those who wish to further stimulate economic growth, need to adopt workable policies but to do so in sectors where they stand to have a market advantage. For instance, technological entrepreneurship has become a source of job creation in Korea. It has been found that high-tech ventures systematically supported by the Korean Government achieved a significantly higher level of innovation and job creation than other small firms (Lee and Gang, 2010). The Malaysian Government has also engaged in the development of biotechnology, nanotechnology, photonics, ICT and advanced manufacturing in the country by providing various training programmes. It also promotes and develops new economic sub-sectors in manufacturing, services and agriculture as a priority in job creation. Hence, job creation has arisen in areas such as environmental management, environmental engineering, pollution minimization, waste management and R&D. As the new sub-sectors in the economy have grown, so has the demand for experts and highly skilled professionals (Malaysia, Ministry of Human Resources, 2006).
What advantages does specific (sectoral) entrepreneurship education or training offer for entrepreneurship and employment? Assan (2012) conducted a case study in Tutume, north-eastern district of Botswana, to investigate whether an entrepreneurial skills training project contributed to greater employment in Botswana. The findings noted that the vocational training had led to job creation in the Tutume district and contributed to increased profit-making capacity of youth-owned enterprises. However there were still challenges including:

- limited domestic market;
- shortage of subsidies;
- high production costs;
- shortage of staff;
- lack of commitment by some youth entrepreneurs; and
- low income.

The study recommended a refocus on the training towards creativity and innovative thinking, peer assistance, establishment of retail co-operatives and target setting and monitoring of projects (Assan, 2012).

While agriculture is a promising sector for job creation (and the participants in our inquiry agreed), in almost all communities across the world where arable land is available and there is a young potentially strong workforce, the right support remains crucial to the development of agricultural entrepreneurial culture among higher education students (Khayri et al., 2011). The right support can also be successfully used at a younger level, for example, in secondary school. Results from a study carried out in a Norwegian upper secondary school indicate that entrepreneurship education programmes are able to influence entrepreneurial intentions among children with different social backgrounds and at a young age (Johansen and Clausen, 2011). By contrast, a similar study by Mahadea et al. (2011) into South Africa’s level of early-stage total entrepreneurial activity (TEA) recorded poorer results partly due to skills and resource limitations. However, the study found that if entrepreneurship education is introduced at the secondary school level, South Africa’s base for entrepreneurial capacity can be enhanced with more skilled young people starting up opportunity firms and necessity ventures (Mahadea et al., 2011).

2.2 Role of education in promoting employment and entrepreneurship

It has been argued that a huge amount of wasteful government spending is attached to misguided and even pernicious policies on education in the misguided belief that more spending in the sector as opposed to vocational training, guarantees economic success (Wolf, 2002). Nevertheless, studies on education continually confirm its importance:

- early analysis on the effects of education as an institution for society’s success (Meyer, 1977);
- role of higher education as a stimulus for growth and well-being of the individual in society (UNESCO, 1991);
- role of education as an essential factor in economic development (Ilhan, 2001);
- relationship between education, society and development in the Caribbean society (Joseph, 2007); and
- importance of education in the entrepreneurial process (Arthur et al., 2012).
Other projects and studies have examined how effective education is for employment in the global workplace (Playfoot and Hall (2009); the approaches to supporting young people who are not in education (UK) (Nelson and O'Donnell, 2012); a review of how to support the future of education for employment and development in South Africa (Chatham House UK, 2014); and the limited impact graduate turnout has on graduate employment in Nigeria (Akinyemi et al., 2014). Surveys on the issues of education and employment by Mckinsey have also examined the factors that inform the design of a suitable system that works to guarantee that young people can move from education to employment. These factors include addressing a critical shortage of skills, impact of violence in society, role of government, families, civil programmes, etc., in the process, and the fact that half of the youths surveyed were not sure that their post-secondary education had actually improved their chances of securing employment (Mourshed et al., 2012). A further Mckinsey study undertook a specific focus on how to get Europe’s high numbers of unemployed youths into employment. The findings here indicated a number of problems – again the issue of skills shortage, the cost of higher education and the difficulty young people in this part of the world faced when making the transition from education to employment (Mourshed et al., 2014).

Most of these studies mentioned considered reports from the International Labour Organisation (ILO), the Organisation for Economic Co-operation and Development (OECD) and the United Nations Educational Social and Cultural Organisation; the consensus is that without the required skill set, young educated people are no more likely to gain good employment easily than their uneducated counterparts can. Entrepreneurship with its greater promise of self-employment and in the long term, employment for others and wealth creation in society is also far-fetched, without appropriate vocational or other training and support including financial support and investment. A report by the Global Business School Network (GBSN) examining the challenges facing the global society identified the shortage of employment and entrepreneurship potential, with the latter being ever more crucial to facilitating employment opportunities in society (GBSN, 2013).

Specific entrepreneurship education has been championed as a necessity for developing countries, but research suggests that the nature of entrepreneurship education matters – transferring “expert” ideas about entrepreneurship training from one society to another do not necessarily yield success. This has been observed in a study on entrepreneurship education in Asia (Dana, 2001). A similar view is supported in a review of entrepreneurship education and employment in Nigeria (Akhuemonkhan et al., 2013). In addition, another view holds that an important approach to tackling youth unemployment and challenges to entrepreneurship in Nigeria would be supplementing entrepreneurship education with work-based training (Salami, 2013). Salami notes that a targeted approach to capitalise on those sectors that hold more attraction for young people such as telecommunications and technology, a re-orientation of values that divert youths away from the idea of easy money or get-rich quick schemes and a re-engineered approach to agricultural entrepreneurship would be beneficial to such efforts in the Nigerian context (Salami, 2013).

3. Overview of research framework
There is an overall need to address youth unemployment and stimulate entrepreneurship activity in emerging economies including in Nigeria. However effective policy-making must be based on identified barriers which can then be directly targeted in government action and investment, and addressed by educational curricula. Figure 1 shows those factors which the researcher believes are essential to employment and entrepreneurship in Nigeria.
3.1 Methodology

3.1.1 Samples and data. The key objective of the research was to determine whether the absence of the factors in Figure 1 are indeed barriers to graduate unemployment and entrepreneurship in Nigeria. The research question sought to find out which of these factors were the least or most relevant, from the perspectives of Nigerian graduates themselves. To do this, the research adopted a qualitative approach (Bryman, 2015; Silverman, 2015; Kothari, 2004). It relied on numerical data collated from issued surveys in its analysis (Maxwell, 2010). Two research activities were carried out. The first, Research Activity 1 (RA1), was a random survey of Nigerian graduates on issues related to education and youth employment. A second survey, Research Activity 2 (RA2), on education employment and entrepreneurship was a purposive sampling of 44 participants on an MBA programme at the Lagos Business School, Nigeria. Since the focus of the study is on Nigeria, all the research participants in both surveys were Nigerian graduates only. Participation in both surveys was independent and voluntary. Table I shows an overview of the participants from RA1 (2011) and RA2 (2013).

Both activities used prepared questionnaires designed on the online survey platform, SurveyMonkey. The responses for both surveys were designed to be anonymous, i.e. individual responses did not bear the subject’s identification. The small scope of the research exercise also meant that a qualitative as opposed to a purely quantitative approach which would require larger numbers of research subjects, was more suitable for the study (Creswell, 2014, p. 120).

4. Results and key findings

Closed-ended questions allowed for participants to choose preferred options. Following receipt of responses from each survey, the data were collated electronically to develop a clear picture of the participants’ views. Thereafter the collated data from RA1 and RA2, respectively, were
Table I. Overview of participants in research on barriers to employment and entrepreneurship in Nigeria

<table>
<thead>
<tr>
<th>Participants’ overview</th>
<th>Rate (%)</th>
<th>Participants</th>
<th>Identity</th>
<th>Age (years)</th>
<th>Completion of NYSC programme (%)</th>
<th>Minimum qualification</th>
<th>Gender (%)</th>
<th>Male:Female</th>
<th>Identifies barriers to graduate employment and entrepreneurship?</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA1 (July-August 2011)</td>
<td>86.2</td>
<td>29</td>
<td>Nigerian</td>
<td>25-40</td>
<td>100</td>
<td>First degree</td>
<td>N/A</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>RA2 (May-June 2013)</td>
<td>100</td>
<td>44</td>
<td>Nigerian</td>
<td>20-39</td>
<td>100</td>
<td>First degree</td>
<td>57:43</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data from research activity on education and employment (RA1) and on education, employment and entrepreneurship (RA2) (Ezeani 2017)
interpreted by evaluating the similarities between the participants’ responses and the initial hypothesis. A comprehensive analysis of the overlapping responses was then undertaken with a view to assessing the weight the participants placed on those nine factors essential to graduate employment and entrepreneurship opportunities in Nigeria.

Graduate education in Nigeria was the common factor amongst participants in both research activities and defined the scope of this study. In Figure 1 the researcher’s hypothesis contemplated that the nine factors highlighted were all relevant to graduate employment and entrepreneurship. From interpretation of the data in both RA1 and RA2, the weight placed on the relevance of each factor varied.

From the research findings, the barriers to graduate employment and entrepreneurship in Nigeria have been set out on a simple scale of 0-12, to correspond to their frequency in the participants’ responses. 0 indicates the factor found to be least relevant and 12, the factor most relevant. The results of the research are shown in hierarchical order in Figure 2.

This result shows that the participants corroborated the researcher’s hypothesis, that there are barriers to employment and entrepreneurship which graduate education alone does not address.

To test the validity of the above results in Figure 2, between 2014 and 2015, the views of some of the participants in RA1 and RA2, and other independent reviewers were further consulted for their feedback on the research findings. These persons were randomly sampled and the results forwarded to them. The independent reviewers’ feedback analysed at least one of the following categories:

- MBA students not part of the survey;
- academics and managers in education and training; and
- self-employed persons, entrepreneurs.

Like the participants in both research activities, these persons were Nigerians, in keeping with the approach of the research. The consulted persons agreed with the research findings. They however emphasised that the greater responsibility for addressing these barriers lay with the Nigerian government. The feedback received proposed that poor government policy and investment was not limited to government’s inability to fund the education sector. It also extended to the inability of the Nigerian Government to provide quality education at all levels from nursery to graduate education, implement policies that support

![Figure 2. Barriers to graduate employment and entrepreneurship in Nigeria. (Ezeani 2017)](image-url)
entrepreneurship activities for indigenous entrepreneurs, and reduce difficulties in accessing available jobs in Nigeria.

4.1 Key findings from Research Activity 1 (2011)
The key findings from RA1 are shown in Table II.

A transition stage from university to the workplace in Nigeria is provided under the National Youth Service Corps (NYSC) programme. Since its creation in 1973, the programme has been compulsory for all Nigerian graduates. However most participants did not want to be employed in their place of service or were not retained by their employers. This raises questions about the effective use of this graduate programme to facilitate employment and entrepreneurship. On questions regarding pay expectations, most of the participants responded that they wanted a much higher wage than the average. None of the participants thought that a monthly income of less than ₦40,000 (c. $230) was a living wage and yet most employers are likely to offer salaries around this amount.

4.2 Key findings from Research Activity 2 (2013)
The key findings from RA2 are shown in Table III.

RA2 sampled the views of MBA students from the Lagos Business School, Lagos (Pan-African University). When asked whether they intended to set up business alone or with another person after their studies, over 79 per cent of the participants’ surveyed answered in the affirmative, suggesting that there is a real interest in entrepreneurship amongst the participants. The participants did not consider that Nigeria’s educational system adequately prepared the youth for opportunities in employment and entrepreneurship; indeed only one respondent agreed with the suggestion. This is an intriguing finding considering that the participants were all products of the country’s education system and, in fact, were engaged in studies in a Nigerian institution at the time they were responding to the survey.

Commonly accepted challenges amongst the Nigerian populace such as excessive government bureaucracy, competition, insecurity and even corruption were not considered significant barriers to entrepreneurship. Over 90 per cent suggested that entrepreneurship was a better option for the Nigerian graduate in the future and all the participants were of the view that the private sector was best suited to support wealth creation in general.

5. Discussion and analysis
Because all the research participants had undergone the compulsory NYSC programme, it is useful to provide a brief background on the relevance of the said programme to the research project. Starting with about 2,364 graduates in 1973, the NYSC programme has graduated over 250,000 corp members annually (News Agency of Nigeria, 2014). They were the 38th cohort in a long line of young men and women who having completed higher education and were mandated under Decree No 24, of 22 May 1973, to serve their country with “with a view to the proper encouragement and development of common ties among the youths of Nigeria and the promotion of national unity” (Federal Government of Nigeria, 2018). Yet in RA1, most participants either did not want to be employed in their place of service or were not retained by their employers under the NYSC programme. Why then does this long-running exercise in mobility not translate into successes in innovations, entrepreneurship, job creation?

It is clear both from the low interest in working for the NYSC employer and the apparent disinterest of those graduates surveyed in RA1 in being retained in their NYSC placements, that the NYSC plays a very limited role in bridging the gap between education and employment in Nigeria. This is unfortunate. The focus on national unity in the objectives of
<table>
<thead>
<tr>
<th>Survey findings</th>
<th>No of participants</th>
<th>Employed in NYSC placement (%)</th>
<th>Benefitted from NYSC skills programme (%)</th>
<th>Top 3 sectors for employment</th>
<th>Bottom 3 sectors for employment</th>
<th>Main barrier to graduate employment</th>
<th>Difficulty getting a job (%)</th>
<th>Minimum pay expected/month</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA1</td>
<td>29</td>
<td>15</td>
<td>20</td>
<td>Private sector trade and business; banking; education</td>
<td>Manufacturing; oil and gas; telecommunication</td>
<td>Poor government policy and investment</td>
<td>90</td>
<td>₦100,000 (c. $575)</td>
</tr>
</tbody>
</table>

**Source:** Data from research activity on education and employment (RA1, 2011)
<table>
<thead>
<tr>
<th>Survey findings</th>
<th>No of participants</th>
<th>Gender/Male:Female ratio (%)</th>
<th>Top 3 sectors for entrepreneurship</th>
<th>Bottom 3 sectors for entrepreneurship</th>
<th>Main barriers to graduate entrepreneurship</th>
<th>Considered it difficult to set up a profitable business (%)</th>
<th>Minimum proposed qualification for employment or entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA2</td>
<td>44</td>
<td>57:43</td>
<td>Agriculture; trade and business; oil and gas</td>
<td>Banking; education; professional services</td>
<td>Poor management skills</td>
<td>93</td>
<td>University degree</td>
</tr>
</tbody>
</table>

**Source:** Data from research activity on education, employment and entrepreneurship (RA2, 2013). (Ezeani, 2017)
the programme is laudable but limiting. The NYSC programme could equally serve more effectively as a transition phase from the school to the work environment.

The NYSC remains primarily an exercise in geographical mobility for the Nigerian graduate, and it is not always a pleasant experience. The deaths of Youth corpsers caught in the religious-themed riots in northern Nigeria and the rising Boko Haram insurgency in the early part of 2013 year are horrific deterrents to any parent or child thinking of national service. The programme is also narrow in its focus, limiting its engagement with the youth corpsers to a year in which it relies wholly on the scarce availability of jobs in the public or private sector to offer placements to graduates. As the findings from RA1 showed, even where support for entrepreneurship schemes was available, not many graduates knew of them or had benefitted from them.

From the results in RA1, the three sectors selected as offering the least opportunities for graduate employment were manufacturing, oil and gas and telecommunication. It could be argued that Nigeria may be missing an opportunity in areas of competitive advantage given its young labour force. The participants clearly recognise that these sectors are not accessible to them. For instance, oil and gas is Nigeria’s main source of national income yet from the results of the research, graduates are not accessing the sector for jobs and entrepreneurship opportunities. To carry out the work of oil exploration, technical knowledge, technology and corporate expertise are conditional to the success of oil exploration activities, and all these require human capital whether it is to develop and implement technical expertise, to implement existing and develop new technology and to facilitate corporate activity and market growth in this area. Nigerian universities must therefore ensure that they are producing graduates with the skill sets required for employment or entrepreneurship opportunities in the sector. Policymakers must also examine and address the sector’s capacity to absorb Nigerian graduates.

The results of both research activities show that there is a concern with the quality of education and skills shortages in Nigeria. There was an almost uniform perception that only university education put an applicant’s capacity to gain employment at an advantage. This view suggests there must be intense competition amongst university graduates for the few available jobs, with non-university degree holders at a distinct disadvantage in the employment market. It also suggests that there is a dissatisfaction and perhaps a lack of confidence in post-secondary education similar to the Mckinsey findings mentioned earlier (Mourshead et al., 2012, 2014). Previous studies have shown that poor infrastructure, poor teaching quality and falling standards are all contributory factors to low-quality education in Nigeria (Odia and Omofonman, 2007; Duze, 2011). Government budgetary allocation has been on the decrease just as constant strikes by school teachers, especially at secondary and university levels, has been persistent. For instance, there has been a severe cut in the education budget from its pre-1970 over 40 per cent of the budget allocation, to 8 per cent in the 1980’s and down to its 3 per cent allocation in the 2011 national budget; the actual total was 6 per cent of which 3 per cent was recurrent expenditure (El-Rufai, 2011). In 2013, the Nigerian Government however increased the education allocation to 8 per cent of the national budget (Federal Government of Nigeria, 2013b). This is still too little for quality education.

Case studies on entrepreneurship conducted by the RA2 participants’ institution, the Lagos Business School (LBS), had previously found that where founders of businesses “possess managerial capabilities, they may provide enough continuity and direction in the company’s transition from birth to growth” (Alos and Bamiro, 2005, p. xxvii). The lack of skills was also identified as a barrier to entrepreneurship in RA2. The researcher noted that while poor power supply was in the set of options available on this question of barriers to
entrepreneurship, it was placed fourth. It is curious that the participants ignored the importance of power supply without which the efficiency and success of twenty-first-century entrepreneurship ventures is in doubt. On the other hand however, as most homes and businesses in Nigeria rely on generators for their power supply, it could be that the participants were only reflecting the realities of the Nigerian business environment with its persistent absence of stable power supply.

The responses to those survey questions evaluating the impact of culture and attitudes on employment and entrepreneurship are also noteworthy. The results in RA1 show that poor government policy and investment are a main barrier to employment. While the participants in RA2 did not place much reliance on the government to create jobs, the participants in RA2 suggested that creating jobs in the society and wealth re-distribution are the two main objectives of wealth creation. Personal satisfaction and making profit for the enterprise were selected as third and fourth, respectively, on the list of options, an interesting result from the survey.

The researcher is aware that there is a social welfare dimension to traditional business culture in Nigeria. Enterprises are mainly family-owned businesses and businesses typically operate a single leadership model structure. There is therefore, in the researcher’s view, an inconsistency between the actual culture of entrepreneurship in Nigeria and the responses provided by the participants. This is because the two main factors chosen – creating jobs in society and wealth re-distribution – suggest a social altruism at odds with traditional and pragmatic views of wealth creation in the Nigerian society, i.e. to make profit and thus provide for the family. As there was no follow-up on the instant research survey, the root of this inconsistency between the participants’ views and commonly held opinion is not clear. It may be owed to “Western” or academic theories of entrepreneurship and wealth creation which have been studied by the participants in RA2, in the course of their MBA programme. As Dana (2001) and Akhuemonkhan et al. (2013) cited earlier noted, the transfer of ideas on entrepreneurship from one society to the other may not always be ideal.

6. Implications and limitations of study
The findings are clear on the role of the government and the education system to urgently address the barriers that stifle employment and entrepreneurship in Nigeria. There is also an urgency to revisit the role of the NYSC programme and Nigeria’s education and skills curricula. The further feedback from those consulted to validate the results and findings of the research project also highlight the need for targeted policies and more effective government investment. Some recommendations are as follows.

**Government policy and investment:** The Nigerian Government has to invest more in the education sector. Policies encouraging local capacity in economically viable areas like agriculture and in the oil and gas sector must also be implemented. The Nigerian Government has already made efforts in this regard, e.g., under the Nigerian Oil and Gas Industry Content Development Act (known locally as the Local Content Act). More needs to be done to ensure there is greater access for job seekers in varied sectors. The government must also address difficulties in accessing employment and entrepreneurship opportunities. For instance, age and the level of experience are inhibitors to employment in the Nigerian context. With constant strikes and closures of universities, most Nigerians will spend a longer time in education than their counterparts in other countries. This means that where employers insist on applicants with a long period of experience, such expectations are unrealistic. Government therefore has to step in with policies that can help check that job advertisements do not effectively remove a large number of persons from the potential pool of applicants. There is also a duty on employers who need to adjust their expectations with
the reality – most university degree holders may be above the cherished ages of 21-24 and may also lack the technical experience gained by their counterparts in countries where apprenticeships and vocational training are offered as alternatives or alongside university education. Policies addressing the need for constructive apprenticeships even for university degree holders can help address this. Direct assistance for entrepreneurship ventures could also be by way of policies which reduce tax and administrative rates and facilitate bank or co-operative loans for new enterprises. Efficient public services including power, pipe-borne water, transport, communication and the guaranteed security for lives and businesses are fundamental government support objectives without which the private sector may not be able to grow and develop new ventures as forecast by the participants.

Skills and technical competencies: Education curricula must develop not only cognitive but also technical skills that can ease graduates into the job market. Government policies encouraging social entrepreneurship and supporting youth workshops and projects have to be publicly available especially at school; the results of RA1 suggest that most of the participants had not benefitting from such programmes is surprising considering the number of such projects identified by the government as previously cited (Essien, 2013). Support in the form of funding for apprenticeships and vocational learning outfits in crafts, music, arts, science and technology, could also supplement a university education and may provide an alternative means of enterprise for the job seeker. Beyond the component of the degree studies therefore, possessing transferable or social skills which are preferred in a work environment can help overcome barriers to employment. A university education that incorporates those skills “empowering learners” will therefore be an additional benefit (Harvey, 2000, p. 11).

- Refocusing the NYSC programme as a clear transition from education to work: The NYSC programme has to be revised. The political objective of national unity does not address the bigger and more urgent need for skilled workers and entrepreneurs. In addition to providing job placements, the programme can also provide support for innovation and skills training for entrepreneurship activity. It must also provide and make young people aware, of funded entrepreneurship opportunities.

- Wider education curricula from early years education: A wider curriculum can also facilitate more effective foundational education and engender more purposeful entrepreneurship activity. Educating school-age children about the resources, challenges and needs of the Nigerian environment can stimulate the student’s understanding on how best to capitalise on these resources, at the point of graduate education and beyond.

- Public and private sector partnership: Other socio-economic measures implied in the participants’ dissatisfaction with the educational system, the lack of infrastructure and lack of support for entrepreneurship, etc. also require attention. This will include direct investment into infrastructure: classroom construction and equipment, stocking libraries, laboratories and research centres. Also, minimising the high cost of education with subsidised school fees including transparently funded and well-publicised scholarship opportunities and the provision of learning support for the disabled, juveniles and those with learning difficulties. Staffing schools with qualified teachers, who can manage students’ expectations with regards to job prospects and salary expectations, encourage talent and entrepreneurship, and in addition, ensure that students learn transferable and social skills as part of their curricula even at pre-university level are also required. Other joint efforts between the schools and the private sector can include supporting

Barriers to graduate employment
schools to invite successful entrepreneurs and career professionals including alumni, to speak to students as role models.

- Enhanced culture and social attitudes: Graduates have a role to play and an obligation to work towards their own future. Government and the public sector cannot be relied on alone. Expecting high salaries or refusing to take up available employment only means more people remain unemployed and the economy suffers to everyone’s detriment. In the absence of strong government support for start-ups, partnerships and co-operative ventures may also be viable opportunities for business initiatives. Pooling finances, resources and talents together rather than going it alone, may prove of greater benefit, especially for high capital-intensive opportunities in oil and gas, power supply, etc. There may also be viable opportunities in inventions and innovations, for telecommunications, health and educational services or to address those business niches existing in the local community.

6.1 Limitations of the study
Both RA1 and RA2 were limited in scope to the questionnaires issued and the small sample sizes. Some issues arising from the responses to both surveys were not followed up in further enquiry and could be the subject of future study. For instance, a more extensive survey of graduates to obtain data on employment destinations following the NYSC programme can provide more information on the successes and challenges in the programme. The study did not explore the impact of issues like gender, learning difficulties, disability and poverty, on employment and entrepreneurship. Further data and analysis on these issues could also offer a more comprehensive treatment of the barriers to graduate employment and entrepreneurship in Nigeria.

7. Conclusion
"Without the end-user as a stakeholder, policy responds to the perceived need rather than an actual need" (European Commission, 2013, p. 2). The results of the research activities in this study support the initial hypothesis, that is, graduate education is not enough and that there are barriers to employment and entrepreneurship in Nigeria. The results and findings show that these barriers in order of relevance are:

- low skills and technical incompetence;
- poor government policy and investment;
- poor foundational education;
- poor transferable skills;
- lack of creativity and innovation;
- culture and social attitudes;
- private sector support; and
- unrealistic pay expectations.

Recommendations that can help efforts at reducing these barriers include:

- effective government policy and investment;
- incorporating skills and technical competence in education curricula;
- refocusing the NYSC programme as a bridge between education and work;
- widening education curricula from early years education;
- public and private sector partnership; and
- enhanced cultural and social attitudes.

As the results of this study show, a pervasive run of youth unemployment and unsuccessful entrepreneurship ventures for future Nigerian graduates can only be checked by informed and strategic action on tackling the barriers identified in this research study.

References


Further reading


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An inclusive approach to regulating the second economy
A tale of four Sub-Saharan African economies

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Abstract
Purpose – This study aims to examine the experiences and lessons from formalisation initiatives in four sub-Saharan African countries. Drawing upon the three main theories that explain the existence of business informality – the exclusion model, rational exit model and dual economy model – the study offers an alternative path to business formalisation.

Design/methodology/approach – The researchers adopted a descriptive-qualitative method, and through the triangulation of data, identified emerging themes and patterns.

Findings – The findings suggest that the informal sector has a small layer that responds to the simplification of regulations and a larger one that requires a different formalisation framework. This shift in paradigm, indirect or group formalisation, where business associations facilitate traceability (registration), self-regulation, access to resources and services for members was observed in all four of the economies studied: Kenya, Ghana, Rwanda and Tanzania.

Research limitations/implications – As with every qualitative study, subjectivity and interpretation inevitably affect the replicability and generalisability of the findings. However, the rich meanings emerging from the qualitative analysis of the text are critically insightful.

Practical implications – Developing countries should explore indirect formalisation. Provision of workspace and construction of business premises for informal operators should be given high priority. The model for building structures for micro enterprises should change in favour of ownership by the operators through their own associations or other private sector investors.

Originality/value – A pioneering study on cross-country analysis based on sub-Saharan African nations to unearth a new paradigm, a shift towards indirect or group formalisation.

Keywords Informal sector, Sub-Saharan Africa, Shadow economy, Business informality, Inclusive formalization, Indirect formalization

Paper type Research paper
Introduction

Economic activities are considered informal because they operate outside the law and account for a significant part of income and employment in most developing countries. The informal sector enables people from all walks of life to obtain power and control over their own means of subsistence (Muller, 2005; Muller and Posel, 2004) and to flexibly explore their talents, skills and opportunities by starting the entrepreneurial journey at a very basic level. However, these activities are unrecorded, legally unrecognised and unprotected (Williams and Nadin, 2010). Most operators grapple with hostility, unpredictability and lack of property rights[1]. They face poor access to workspace and basic services and are characterised by low levels of productivity, incomes, growth and poor quality of jobs (La Porta and Shleifer, 2014; Kistruck et al., 2015). Informal firms do not directly pay taxes and may present unfair competition to the formal ones (Abdallah, 2017; Farrell, 2004; Levy, 2008). Informality thwarts poverty reduction by trapping the poor in a vicious cycle of low awareness and capacity – lack of legal protection and access to basic services – and low productivity and income (Hudson et al., 2012; Wangwe and Mmari, 2014).

Formalisation attempts have, however, had very limited success. Some scholars have questioned the argument that informality tends to decline proportionately with GDP growth or economic transformation, citing Indonesia and South Africa as examples. For instance, despite substantial growth and the transformation of Indonesia from an agrarian to an industrialised, medium income economy, over 90 per cent of its enterprises are informal (Rothenberg et al., 2016), while South Africa’s first-world economy co-exists with a large informal economy. In fact, it is estimated that 83 per cent of the micro, small and medium enterprises in South Africa are informal (Finscope, 2011).

The main approach used to realise formalisation is regulatory simplification. However, increasing research evidence shows that this approach works for only a small part of the informal economy (DCED, 2017; Olomi and Urassa, 2016). La Porta and Shleifer (2014, p. 110) found that while the avoidance of taxes and regulations is a significant reason for informality, lowering registration costs neither brings many informal firms into the formal sector nor unleashes economic growth. They also found that informal firms rarely transition to formal ones, lending support to the dual model of informality.

In a study of Latin American firms, La Porta and Shleifer (2008) found that, on average, 91 per cent of registered firms started out as registered. The dual model of informality posits that informal firms reside in an economic space of their own, disconnected from the formal space. According to La Porta and Shleifer (2014), the supply and demand factors keep informal and formal economies separate. As long as the vast majority of the population lives in poverty, there will be insufficient demand for quality products and services from the formal sector. The formal sector will remain small, catering to a minority of formal workers who can afford higher quality, more expensive goods, while the informal sector will provide low-quality products cheaply to the vast majority of the population who cannot afford the output of the formal sector. This raises the question as to what kind of models can address this challenge.

This study sought to explore and draw lessons from the approaches and modalities used to deal with informality. The main question was what can be learnt from international experience in managing and transforming the informal economy. The specific objectives were as follows:

- to critically examine the nature and causes of business informality;
- to examine the experience, challenges, success stories and lessons from initiatives to manage and transform informality; and
- to seek fresh insights and bring fresh ideas into the business formalisation debate.
The rest of this paper proceeds as follows. In the next sections, an in-depth literature review on the nature and causes of informality is presented. Next, using a qualitative case study approach, a comprehensive analysis is conducted to illustrate how the four economies examined in this study have attempted to address informality. Based on the qualitative case analysis, propositions that reflect the findings were formulated. Following the analysis, the paper discusses implications from what was learnt about the four economies in managing and transforming the informal economy. The paper then concludes by presenting the limitations of this study and suggesting future research directions.

**Theoretical foundation**

**Nature and causes of business informality**

The informal sector is characterised by ease of entry, reliance on indigenous resources, family ownership of enterprises, small scale of operations, labour-intensive technology, skills acquired outside the formal school system and unregulated and competitive markets (Hart, 1973; Rakowski, 1994; Sáinz, 1995). Commonly used criteria in identifying informal firms are legal personality, registration and licensing, type of workspace and employment arrangements (Maloney, 2004). A distinction is sometimes drawn between *de jure* (legal) formalisation and *de facto* (practice) formalisation (Nelson and De Bruijn, 2005). The informal economy is highly heterogeneous in terms of type of activity, scale of operation, quality of workspace, educational level of operators, motive, dynamism, degree of legal compliance, etc. (Utouh, 2012; La Porta and Shleifer, 2014).

There are three main theories explaining the existence of business informality: the exclusion model, rational exit model and dual economy model. According to the *exclusion model*, businesses are rendered informal by legal requirements that are too complex, costly and/or culturally alien. While most regulations were implanted from Western developed economies, developing countries have many small/micro enterprises that cannot meet the cost of compliance (De Soto, 2000), as well as high degrees of informalisation of political and economic markets whereby people make deals based on informal reciprocal relationships, rather than formal procedures (Ninsin, 1991; Hyden, 2004; Anuwa-Amarh, 2015). The disconnect between indigenous (the majority of informal businesses) and modern institutions leads to a lack of legitimacy (and thus enforcement) of the former (Hyden, 2004; Haili, 2014).

It is also argued that corporate and political interests may deliberately seek to sustain exclusion of a large part of the economy from the formal mechanisms for two reasons. First, the informal sector functions as a cost-reducing mechanism for formal capitalist enterprises, which enables them to increase competitiveness through dependence on cheap, non-compliant suppliers and distributors (Castells and Portes, 1989). Secondly, for politicians, the informal sector may function as a vote bank. Because informal operators do not live by the law, some politicians take advantage of this vulnerability to trade protection for votes (Sarkar, 2006; Shami and Majid, 2014; Chatterjee, 2004). Thus, according to the *exclusion model*, these punitive, cumbersome and culturally insensitive formalisation models exclude, or hold back, a magnitude of entrepreneurs (De Soto, 1989, 2000). These entrepreneurs are unable to access formal financial resources, such as government grants and bank loans, and lack the legal standing to secure government contracts and enter the formal market. Proponents of the *exclusion model* argue that formalisation can be greatly enhanced if these cumbersome government regulations and other institutional barriers are removed or reduced.

Conversely, in a series of recent studies using World Bank Enterprise Survey (WBES) data, Williams et al. have questioned the widespread assumption that firms starting as
unregistered in the informal economy tend to experience poor performance compared to those that are registered in the formal economy at their inception. They found that formal enterprises that started as unregistered and stayed so for a longer period have significantly higher subsequent annual sales and productivity growth rates compared to those that were registered at inception (Williams and Kedir, 2017a, 2017b; Williams and Kedir, 2016; Williams et al., 2017). Williams et al. argued that in weak institutional environments, such as those highly prevalent in developing countries, the advantages of registering at inception are offset by the gains of deferring business registration and the low risks of detection and penalisation. They called for a paradigm shift towards policies that are more positive and aim at improving the benefits gained from business registration and eradicating or minimalising the systemic formal institutional deficiencies that discourage entrepreneurs from registering their ventures from the start. Abdallah (2017) makes similar arguments to Williams et al., he found that in Tanzania, the firms in the informal sector registered higher growth rates than their counterparts.

According to the rational exit theory, a segment of business operators consciously decides to be informal to avoid compliance costs associated with rules, regulations and taxes, as well as the convenience and flexibility offered by operating informally (Nelson and De Bruijn, 2005; Maloney, 2004; Chen, 2012; Rothenberg et al., 2016). SMEs will evade formalisation when the costs of formality are greater than its benefits (Levy, 2008; Maloney, 2004). Rothenberg et al. argued that entrepreneurs make the formality decision like any other investment decision, carefully considering the expected return on the investment. Some of the commonly listed benefits that accrue to formalised firms that may elude informal firms are government contracts, access to training and development programs, financial inclusion, ready access to government grants, bank loans, legal standing-avoiding harassment from corrupt officials, etc. These benefits are pitched against the cost of formalisation, such as the cost of registration and, the cost of compliance with various regulations, taxation, etc. Thus, according to proponents of the rational exit model, formalisation can be achieved by increasing the benefits while reducing the cost of formality. Moreover, all and any existing benefits of formalisation must be made salient while enforcing registration requirements (Rothenberg et al., 2016).

The dual economy model casts the informal sector as a unique segment of the economy, characterised by low levels of skills, poor technology, low productivity and low incomes and, therefore, the inability to comply with the standards of the “modern” economy (La Porta and Shleifer, 2008). Poor and low-skilled people view the informal sector as the only option for securing their livelihoods (Lewis, 1954; Chowdhurry, 2007). Contrary to the other two theories, the dual economy model holds that structural reforms, such as reduction in registration costs and the simplification of the legal requirements, are unlikely to enhance the formalisation of the informal sector. The informal sector is viewed as meeting a need that the formal sector cannot provide given its cost structure. Thus, the two sectors are fundamentally different (La Porta and Shleifer, 2014) and as long as there is a strong demand for the informal sector’s products, its presence will persist.

Initial views of the dual economy assumed that it was a temporary phenomenon that would disappear as the modern sectors expanded (Lewis, 1954). According to this school of thought, formalisation can be enhanced through economic development, which would increase the earning potential of those at the bottom of the economic pyramid and, in turn, would increase the demand for formal sector products while decreasing demand for the informal sector’s products (Rothenberg et al., 2016). However, it is now becoming clear that most informal operators are trapped in a vicious cycle by their low resource endowments
and legal and economic structures that are increasingly excluding them. Several countries have already acknowledged the existence of a “second economy” that requires a special policy and regulatory framework (Olomi and Urassa, 2016).

Methodology

Research approach

The study adopted a descriptive-qualitative method (Lambert and Lambert, 2012) through document review, in-depth interviews, focus group discussions and stakeholder validation meetings that were mainly based on the explorative research design. Through the triangulation of data, comparisons and critical reflection, the researchers identified emerging themes and patterns. Following Carneiro et al. (2016), the researchers used different data collection strategies and different data sources for content validity purposes. The study started without any preconceived ideas or framework, allowing important findings to shape the paper.

In previous research, the case study method was used to provide theoretical and practical insights (Arenas, Sanchez and Murphy, 2013). In this exploratory research, the goal was to critically examine the nature and causes of business informality, as well as the initiatives that have facilitated or hindered the transformation of business informality. Given the paucity of research in this specific area and, more precisely, in Africa, the case method is appropriate as it facilitates the exploration and analyses of this complex social phenomenon (Eisenhardt, 1989; Yin, 2003). The cases presented here were selected on the basis of theoretical sampling, as they were considered appropriate for providing new insights into the nature and causes of business informality in Sub-Saharan Africa, given the region’s recent regulatory reforms and attempts at formalisation (Eisenhardt, 1989; Stake, 1995). Each country included in the sample met the following criteria:

- located in sub-Saharan Africa;
- undertook regulatory reforms and/or made documented attempts at formalisation of firms in the informal sector during the past five years; and
- in each country the study was conducted in the capital city and major cities, where entrepreneurial activities tend to be most intense and where the key government offices are located.

As with every qualitative study, the subjectivity and interpretation inevitably affect the replicability and generalisability of the findings. However, arguably, the rich meanings emerging from the qualitative analysis of the text are critically insightful (Krippendorff, 1980). Krippendorff opined that in qualitative studies, it is not so much about how objectively a study is executed, but rather how compellingly it is presented that makes a piece of research valuable to the scientific community.

There are two main approaches to gathering and analysing case study data. First, there is the nested approach which examines multiple sources within a single organisation (country) (Yin, 2009) and then there is the cross-case analysis approach, which may involve four to ten case studies of different organisations (countries) (Eisenhardt, 1989). In this study, both approaches are adopted. The nested approach is used to analyse interviews scripts gathered within each country, and the cross-country analysis is used to analyse the commonalities among the countries.

Data collection. In the nested approach (Yin, 2009), the interview participants included the local governments, the central government ministries and agencies relevant to
formalisation issues, and the informal sector operators and their associations (A sample of interview protocol [semi-structured questions]):

(1) Questions to the micro and small enterprises authority.
   • How are micro enterprises regulated in your country?
   • Briefly outline for us your country’s history of micro enterprises policies and regulations?
   • Is online registration and licensing practiced in your country? If yes, did your country change laws and regulations to make it possible?
   • How long does it take to register micro enterprises in your country? Does this vary by region, e.g. rural areas vs urban regions?
   • How much does it cost to register micro enterprises? In your opinion, is that affordable to micro enterprises?
   • What services does the government provide for micro enterprises? Are these services provided to registered micro enterprises or all micro enterprises?
   • What incentives programs has the government implemented to encourage micro enterprises to register? Does the government measure the impact of these programs?

(2) Questions to street traders and food vendors.
   • Is your business registered or licenced? If yes, by who?
   • If licensed or registered, how much do you pay for your registration/licence? Is that affordable to you?
   • If not licensed or registered, does that affect your ability to access vital services such as loans or training from the public or/and private sector?
   • Are you a member of an association/ a cooperative? If yes, what are the benefits of being a member?
   • Have you ever received any assistance from the government?
   • What are some of the greatest challenges in your line of business?

(3) Questions to associations/cooperatives.
   • What is the aim of your organization and who are your members?
   • What benefits do your members get from your organization?
   • Is your organization recognized by the government? If yes, what assistance have you received from your government?

Appendix 1 reflects interview and participant observation data, while Appendix 2 depicts validation events. The narratives tell the story of the experiences, challenges, success stories and lessons from multiple stakeholders, as well as the initiatives that have enabled or prohibited the transformation of business informality. Cross-country analysis was done among four countries, namely, Tanzania, Ghana, Kenya and Rwanda. The geographical coverage included Dar es Salaam, Mwanza and Moshi in Tanzania, Kigali (Rwanda), Nairobi (Kenya) and Accra (Ghana). Secondary data were gathered from the World Bank Doing Business database and World Bank Doing Business reports from 2015-2017[2].

Analysis
A systematic approach advocating for grounded methods research was adopted (Auerbach and Silverstein, 2003; Corbin and Strauss, 2014). First, the driving research questions were
identified, as earlier stated, to guide the data collection and analysis. The target populations and the specific classes of participants within these populations were then selected. Theoretical sampling, where participants were chosen for theoretical, not statistical, reasons was deployed (Eisenhardt, 1989; Stake, 1995). Each country was selected based on its record in managing informality and documented attempts at formalisation. Consequently, in each country, the capital city and any major cities were selected given the intensity of the entrepreneurial activities and the location of key government offices in these cities.

Secondly, an interview protocol was generated. The protocol was structured to explore the dimensions involved in transitioning informal enterprises, particularly among those in less industrialised nations (see the sample of interview protocol [semi-structured questions]). The interview protocol called for developing an instrument that would assist us in conducting an in-depth investigation of the process and nature of the factors that have eased or deterred the transformation of business informality.

Thirdly, semi-structured, face-to-face, in-depth interviews were conducted with local governments, central government ministries and agencies relevant to formalisation issues, informal sector operators and their associations. Structured questions were used on all interviewees, and each person was asked the same questions. However, whenever a respondent’s point was not clear or when a respondent shared a fascinating point, unstructured questions were used to seek clarification or deeper insights. The validation events (Appendix 2) were used throughout the iterative data collection as advocated for in grounded theory (Glaser and Strauss, 1967; Charmaz, 2006). Grounded theory requires constant comparison between data collection, data coding and theory development until enough information to fully develop (or saturate) the model is generated.

Fourthly, data from each country were coded using the nested approach (multiple interviews from multiple stakeholders within each country). Archival data were also used to triangulate the data. In the event of any inconsistencies, clarification was sought from the concerned stakeholder. The data from World Bank Doing Business were used to generate cross-country comparative charts and tables, while an in-depth content analysis was conducted on the World Bank Doing Business reports from 2015-2017 using NVivo 11.0. Two authors independently coded the data, and discrepancies were resolved through discussion and the re-examination of the data. After using the nested approach, cross-country analysis was used to identify the commonalities among the four countries.

Lastly, feedback from experts in the field was sought. Initially, colleagues were consulted and later, an early draft of the article was presented at a formalisation Stakeholder Validation Meeting in Dar es Salaam, a national conference of local authorities in Tanzania and also at an international conference (Appendix 2). The analyses were further refined based on feedback (Bruton, Khavul and Chavez, 2011).

Findings

Direct vs indirect formalisation

The study has identified two major approaches in realising the objectives of formalisation. The conventional approach to formalisation has been a direct one, whereby the government, its agency or a local government deals directly with the businesses to provide formalisation related interventions, such as registration, licensing, training, information, allocating, constructing and managing workspace. The research team observed an emerging, indirect approach to formalisation, whereby the state, its agency or the local government empowers and partners with business associations to improve traceability, control and access to capacity building, access to premises and markets, voice, etc. In indirect formalisation, control over the informal business activities is partly through self-regulation mechanisms.
within the associations or cooperatives. Below, the study examines and compares the experiences and lessons from these two approaches.

Direct formalisation approaches and initiatives
In this section, the paper will discuss findings from the various direct measures that the four countries have used to encourage formalisation. The findings were first derived from the field study and then validated through content analysis of the World Bank reports and analysis of World Bank data.

Simplification of regulations. The field study indicated that all the countries included in this study have implemented several programs intended to simplify business regulations. The reforms have included automation of name search and online registration (Kenya, Tanzania and Rwanda), mobile phone registration (Kenya) and online and single payment of registration fees (Kenya, Tanzania and Rwanda). In 2005, Ghana introduced a reform program, which was primarily aimed at reducing the time and cost of registering businesses as well as decentralising registration to make it more accessible. In 2009, Ghana engaged in yet another regulatory reform by integrating the various tax agencies (Customs, Internal Revenue and value added tax – VAT) to enhance information flow and reduce compliance costs in hopes of promoting voluntary compliance (Table I).

A cross-country analysis of the World Bank Doing Business data ranks Rwanda first among this group of countries in terms of ease of doing business indicators, followed by Kenya and Ghana. Tanzania is ranked just above the regional average (Table II). Rwanda was ranked number two in sub-Saharan Africa in 2014, 2016 and 2017 and third in 2015. At the global level, it was ranked 62 and 56 in 2016 and 2017, respectively (World Bank, 2017). In terms of ease of doing business, Rwanda takes the lead on all but two featured categories. Rwanda leads in access to credit, property registration, ease of tax payment and ease of starting a business, while Tanzania takes the lead in readiness in attaining electricity and Ghana leads in construction permits (Figure 1). A similar trend is observed in 2016-2017 World Bank data (Table II).

However, it is also important to note that Rwanda has the lowest gross national income (GNI) per capita, and the lowest national population. Therefore, Rwanda is growing from a smaller base. Nevertheless, Rwanda has made remarkable growth in the aforementioned categories. For instance, Rwanda is ranked second in the world in terms of ease of accessing credit, while the region’s average rank is 116.98 out of 190. Tanzania made the most remarkable improvement from being ranked 152 out of 190 (Distance to Frontier [DTF] of 25 out of 100) in 2016 to a rank of 44 (DTF score of 65) in 2017 in the ease of accessing electricity category. Kenya was among the ten economies recognised for making the biggest improvements in business regulations in the last two consecutive years (World Bank, 2017). Table III summarises the most salient regulatory reforms accomplished by the four countries that are pertinent to this study. According to Doing Business 2005 to 2017 World Bank data, Rwanda implemented a total of 47 reforms across all indicators. However, in this study, the content analysis table has highlighted only three reforms that are most relevant.

The cross-country analysis as depicted in Figure 1 demonstrates that all four countries have made attempts to simplify regulations and improve the ease of doing business. This is evident by the fact that they all rank above the region’s average, except for Tanzania, in the ease of tax payment category and the ease of obtaining construction permits in Kenya and Rwanda. It is also imperative to note that the decline in some indicators was necessitated by the demand for higher standards or more stringent quality controls. For instance, Rwanda reinforced quality control by establishing required qualifications for architects and engineers. This reform increased both cost and time requirements and thus decreased access. However, this reform increased the overall integrity of the sector. In general, all four
countries made progress in several dimensions, as evident from both the field study and the World Bank data.

Nevertheless, it is imperative to note that even though Rwanda has been so successful in reforming its business regulations, over 90 per cent of its enterprises are informal (Sparks and Barnett, 2010). Additionally, none of the other three countries have reduced informality. Studies in Asia and South America consistently show that regulatory simplification has very limited effect on formalisation (DCED, 2017; Rothenberg et al., 2016; Olomi and Urassa, 2016). Adams, de Silva and Razmara (2013) found that in sub-Saharan Africa, nearly 70 per cent of employment outside farming is in the informal sector. They further assert that this phenomenon seems to be a significant and durable feature of Africa’s economic landscape. Other studies have placed employment in the non-farming informal sector of Kenya as high as 77 per cent (Foeken and Owuor, 2008; Institute of Economic Affairs, 2012; International Labour Organisation, 2013). Thus, this study proposes that:

Table I. Cross-country analysis based on field data
### Table II: Cross-country comparisons of countries' ranking and scores based on the World Bank’s ease of doing business indicators

<table>
<thead>
<tr>
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<tr>
<td>Ease of doing business (Rank 1-190)</td>
<td>108.00</td>
<td>114.00</td>
<td>92.00</td>
<td>108.00</td>
<td>56.00</td>
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<td>76.00</td>
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<td>83.13</td>
<td>74.47</td>
<td>87.17</td>
<td>83.05</td>
<td>79.14</td>
<td>79.38</td>
<td>75.33</td>
<td>74.42</td>
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<td>77.00</td>
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<td>115.00</td>
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<td>42.00</td>
<td>32.00</td>
<td>28.00</td>
<td>2.00</td>
<td>2.00</td>
<td>44.00</td>
<td>152.00</td>
<td>116.98</td>
<td>118.00</td>
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<td>83.73</td>
<td>83.13</td>
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<td>79.14</td>
<td>79.38</td>
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<td>125.00</td>
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<td>154.00</td>
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<td>79.69</td>
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<td>61.69</td>
<td>62.85</td>
<td>57.75</td>
<td>58.70</td>
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<td>1,520.00</td>
<td>1,340.00</td>
<td>1,290.00</td>
<td>700.00</td>
<td>650.00</td>
<td>910.00</td>
<td>930.00</td>
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<tr>
<td>Population</td>
<td>27,409,893</td>
<td>26,400,000</td>
<td>46,050,302</td>
<td>45,500,000</td>
<td>12,988,423</td>
<td>21,000,000</td>
<td>53,470,420</td>
<td>50,800,000</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

**Notes:** Distance to frontier (DTF) scores; *No data available for 2016-2017. The latest data available are from 2015. Population of 1.001 billion and GNI per capita of US$1,637.30. **Source:** The World Bank Database (www.doingbusiness.org/data); http://data.worldbank.org/region/sub-saharan-africa
A majority of informal businesses are unlikely to transition to the formal sector even when regulations are simplified.

Provision of workspace. Except for Kigali (Rwanda), none of the cities visited have found a workable solution for providing workspace for informal operators. In Dar es Salaam (Tanzania), the Ilala Municipal Council borrowed funds from a pension fund to build a six-
storey complex for machingas (street traders). However, the building remains largely unoccupied due to its unattractive location, the trading space being enclosed and too big and expensive for the street traders who need (and can afford) much less space and whose business models rely on open (unenclosed) spaces and street traders resisting the rental fee set by the municipal council.

In Kenya, Nairobi County completed the Muthurwa market, which was designed to accommodate 8,000 street traders in 2008. Street traders resisted the rental fees initially set and moved in only after the fees were halved. The market now accommodates 16,000 traders, twice the intended number, and is already being wrecked by overcrowding and inadequate maintenance.

Mwanza (Tanzania) and Accra (Ghana) tried to woo private investors to set up similar complexes through public–private partnerships, but the investors turned down the offers after realising that they would not be able to charge economic rates due to the solidarity of street traders and the politicisation of the rentals. Government-owned premises in each of the countries examined tended to charge lower than market prices, leading to capture and rent seeking by public sector workers and initial occupiers. Thus, the study proposes that:

\[ P2a \] Informal businesses are unlikely to transition to the formal sector when an inapt workspace is provided.

\[ P2b \] The direct management of a workspace for informal operators by government or governmental agencies is likely to be ineffectual.

**Capacity building.** All local governments have some form of capacity-building activities (training, credit programs, support of the formation and strengthening of groups of informal operators, etc.) for micro enterprises. Interviews in all four countries revealed that capacity-building and credit programs designed for micro enterprises have been ad hoc and are not sustainable and have little visible impact.

In Ghana, capacity building is mainly provided by community development officers or field officers at both the assembly and sub-assembly levels. However, the training is rudimentary at best and the trainers ill-equipped. The training is focused mostly on very basic needs and targets the very poor. The training agenda seems not to be geared towards empowering informal sector operators to formalise and grow, but rather to eke out a living. Kenya has no specific government-sponsored capacity programs directed at informal traders and street vendors. In Tanzania, the community development department deals with the capacity building of women’s economic groups, while the youth development department deals with youth groups. However, there is no coherent coordination or promotion of informal sector operators.

Thus, this paper proposes that:

\[ P3a \] Informal businesses are unlikely to transition to the formal sector when inapt capacity building is provided.

\[ P3b \] Direct capacity building of individual informal operators is likely to be ineffectual if it is not market-orientated and learner-focused.

**Enforcement of regulations.** Enforcement of regulations is implemented mainly by local governments, which maintain special security personnel for this purpose. However, given the large number of operators, local authorities also contract private firms to collect levies and fine operators who infringe the bylaws. In all cities except Kigali (Rwanda), this has led
to persistent clashes between law enforcement agents and operators. The enforcement agents are often accused of corruption, destruction and illegal confiscation of the operators’ tools and products. This harassment is one of the biggest complaints of informal operators.

Analysis of the World Bank Doing Business data and content analysis of the Doing Business 2017 Report partially explain Rwanda’s success in the enforcement of regulation. Rwanda’s rank improved from 127 out of 190 in 2016 to 95 in 2017 (Table IV). In January 2016, the country introduced the Integrated Electronic Case Management System in Kigali city courts and all commercial courts (Table V). This reform resulted in a considerable reduction in cost and time and greatly enhanced transparency and the reliability of statistical data on court operations. This may encourage operators to pursue justice due to the affordability and reliability of the court system. Figure 2 places all four nations above the regions’ average in the “enforcing contract” category. Kenya’s DTF score in the “resolving insolvency” category improved by 12.75 per cent from 2016 to 2017. This improvement coincided with Kenya adopting a new Insolvency Act in 2016 (Table V). An overall examination of the enforcement of regulations using field study data and archival data demonstrates that these countries are still relatively weak in enforcement of regulations. Tanzania leads with a DTF score of 61.66 per cent, while the region as a whole averages at 47.73 per cent. Rwanda only scored a 56.76 per cent even after the reforms (Table IV).

Thus, the paper proposes that:

\( P4a \). Informal businesses are unlikely to transition to the formal sector when inapt enforcement of regulations is imposed.

\( P4b \). Direct enforcement of regulations pertaining to informal operators by the government is likely to be ineffectual when the regulations or the implementers are ill-equipped.

**Indirect business formalisation**

There seems to be a paradigm shift towards the indirect formalisation of informal businesses. Some of the indirect formalisation approaches in the four countries studied are shown in Table I.

Rwanda is consciously encouraging, and even forcing, every business operator who cannot get a conventional license to join a cooperative (at least ten people are needed to form a cooperative), with a database of members and a certain minimum level of self-regulation and services to members. Associations are encouraged to develop workspace for their members. The local governments engage closely with the cooperatives, supporting capacity building, access to finance, access to land and, in some cases, guaranteeing loans for the construction of workspace owned by the cooperative. The cooperatives organise training for members, whether the training is offered by government agencies, development partners or by the cooperative itself.

Though not as developed as in Rwanda, the other three countries studied have active associations that are working with the local and central governments, as well as development partners, to enhance organisation, traceability, capacity and access to important services to members. Table I summarises what is being done by at least some associations in each of the countries.

VIBINDO Society, the biggest association of micro enterprises and informal workers in Tanzania, provides ID cards, policy advocacy, medical insurance and credit to members. Market (including weekly markets – magulio) traders have basic forms of internal regulations (payment of fees, cleaning and code of conduct at the market) and which provide security in markets. Motor vehicle drivers have also agreed on a schedule of operations, fare, and a code of conduct, which are all strictly enforced.
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<tr>
<td>Enforcing contracts (Rank 1-190)</td>
<td>114.00</td>
<td>116.00</td>
<td>87.00</td>
<td>102.00</td>
<td>58.00</td>
<td>64.00</td>
<td>95.00</td>
<td>127.00</td>
<td>130.52</td>
<td>132.00</td>
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<td>DTF score for enforcing contracts (0-100)</td>
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<td>56.76</td>
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<td>161.00</td>
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<td>144.00</td>
<td>100.00</td>
<td>99.00</td>
<td>73.00</td>
<td>72.00</td>
<td>123.54</td>
<td>128.00</td>
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<td>DTF score for resolving insolvency (0-100)</td>
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<td>21.88</td>
<td>43.39</td>
<td>30.64</td>
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<td>47.85</td>
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<td>114.00</td>
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<td>Overall distance to frontier (DTF) score (0-100)</td>
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<td>69.81</td>
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<td>1,340.00</td>
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<td>910.00</td>
<td>930.00</td>
<td>700.00</td>
<td>650.00</td>
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<td>Population</td>
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<td>26,400,000</td>
<td>46,050,302</td>
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<td>12,988,423</td>
<td>12,100,000</td>
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**Notes:** Distance to frontier (DTF) scores; *No data available for 2016-2017. The latest data available are from 2015. Population of 1.001 billion and GNI per capita of US$1,637.30. **Source:** The World Bank Database (www.doingbusiness.org/data); http://data.worldbank.org/region/sub-saharan-africa
The key feature of the policy and regulatory framework for micro enterprise in Kenya is that operators register with associations rather than the government. The Micro and Small Enterprises Agency (MSEA) envisions improved formalisation, beginning with enterprises being traceable through an association (35 members are needed to register one), formally recognised premises and finally, the formal registration these businesses, with built-in incentives to move to the next level. A Registrar of Micro and Small Enterprises Associations was established under the auspice of the Micro and Small Enterprises Act. Thus, the study proposes that:

P5. Informal businesses are likely to realise the benefits of formalisation (traceability, access to information, training, workspace, finance, insurance, etc.) when encouraged or required to join self-regulated cooperatives or associations.

Inclusive approach to regulating the second economy

Table V.
Enforcement of regulations: cross-country analysis based on World Bank data

<table>
<thead>
<tr>
<th>Country</th>
<th>Enforcing contracts</th>
<th>Resolving insolvency</th>
<th>Overall distance to frontier</th>
</tr>
</thead>
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<tr>
<td>Ghana (2017)</td>
<td>54.00</td>
<td>25.27</td>
<td>58.82</td>
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<td>Kenya (2017)</td>
<td>54.00</td>
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<td>57.05</td>
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<td>Tanzania (2017)</td>
<td>58.27</td>
<td>43.39</td>
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<td>Rwanda (2017)</td>
<td>56.25</td>
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<td>Regional Average (2017)</td>
<td>58.76</td>
<td>47.85</td>
<td>60.68</td>
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</table>

Source: The World Bank Database (www.doingbusiness.org/data) 2017 data set
Discussion

This paper explored the nature and causes of business informality, while seeking to gain fresh insights from the experiences, challenges, success stories and lessons learnt from initiatives implemented by four sub-Saharan African nations in the process of managing and transforming informality. Regulatory reforms and initiatives designed to promote business formation and, ultimately, formalisation were analysed. A set of propositions were formulated that may serve as a guide for future research. This study has identified and documented a potentially powerful, indirect formalisation approach, under which registered cooperatives or associations register, regulate and provide critical services to informal operators. In the same way that group lending made micro credit possible, indirect formalisation promises to make regulating and servicing micro enterprises viable. However, the approach seems to have received almost no academic interest. The implication of these findings is that, for research and policy on business formalisation to be effective, the field needs to more critically examine the nature of informality in specific contexts. Also, it is critical to partition the informal economy into specific segments that lend themselves better to theory development and policymaking.

Developing countries should explore indirect formalisation as a more practical and inclusive approach to legally recognising their micro enterprises. Provision of workspace and construction of business premises for food vendors, street traders and other informal operators should be given high priority in all urban areas. The model for building structures for micro enterprises should change in favour of ownership by the operators through their own associations or other private sector investors.

The findings of the study have shed some light on emerging potentials and models for business formalisation. However, there is a lot that needs to be better understood to design appropriate formalisation policy. Foremost is to learn more about the different segments of the informal economy and how they are likely to respond to different policy measures. Secondly, it is important to find out how the special policy and regulatory frameworks are faring in the countries where they have been tried. There are many reasons why they may not work well, including resistance by politicians and policymakers and the risk of trapping otherwise growing micro enterprises in the second economy. It is also likely that indirect formalisation will work better in certain sub-sectors than others. Asongu and Tchamyou (2016), based on a sample of 53 African countries, found that there may be unexpected signs when the government policy is not effective. Such laxity in the formulation or implementation of policies tends to undermine business prospects in a wide spectrum of fields. Thirdly, attention should be directed towards understanding how the structure of a sector and the economy affects economic marginalisation and dualism, with a focus on identifying policy options that can result in a healthy co-existence of the two economies and maximising the potential and propensity of the second economy actors to graduate to the first economy.

Conclusion and future research direction

This study started with a broad agenda, allowing insights to shape its direction. Future research can have a closer focus on the emerging perspectives and specific sectors. The merits of indirect formalisation can be examined and the model enhanced through quantitative research.

Government attempts to directly build capacity by providing finance or workspace to regulate micro enterprises are apparently not effective. There is an apparent paradigm shift towards indirect formalisation, under which business associations or
cooperatives are empowered to take greater responsibility for registration, self-
regulation, capacity building, finance and provision and management of premises. 
Robust associations can create mutually re-enforcing dynamics among the key pillars 
of business formalisation. Such robust associations can police members, influence 
policymakers, provide or influence availability of premises and markets and contribute 
to capacity building, which, in turn, attracts members and strengthens the associations 
(Figure 3). This argument is consistent with Jardon and Tański’s (2018) findings. Jardon 
and Tański found that space and place constraints small business success in resource 
scarce environments and accelerate growth in supportive environment with ready 
access to resources, complementary skills and knowledge, reinforcing the idea of 
agglomeration.

Working through organisations owned by the informal operators may enhance the 
legitimacy of the regulatory mechanisms. This may be a way of countering the 
disconnection between transplanted institutions with local economic actors, and according 
legitimacy to the formal institutions.

The use of indirect formalisation through empowering associations and cooperatives to 
deliver these formalisation services to their members is apparently far more effective and 
efficient compared to the use of formal government institutions. The cost structure of 
government institutions, as well as their capacities, does not match the task of engaging 
with a large number of very small and unstable businesses. Melese (2018) opined that 
government support often breed overdependency among the micro enterprises. Melese 
further argued that it is imperative for private sector to get involved in the eco-system by 
facilitating services such as savings and credit, business development and skills training. 
Additionally, the use of associations resolves challenges related to under-pricing and rent-
seeking in workspaces managed by the government. Direct formalisation will work for only 
a small part of the economy and leaves out the base of the pyramid. Indirect formalisation 
has greater potential of being inclusive and reaching the population at the base of the 
pyramid.

Figure 3. 
Mutually re-enforcing 
formalisation pillars
Notes

References
DCED (2017), “What do we know about the effectiveness of business registration support and reforms? Key studies referenced in the DCED evidence framework. Donor committee on


Institute of Economic Affairs (2012), The Budget Focus, A Publication of the IEA Budget Information Programme, Issue No. 29.


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<tr>
<td><em>Nairobi, Kenya (interviews):</em> Food vendors at Muthuruwa Market; 3 food vendor Central Business District; Garment trader at Nairobi City Market; hawkers and street food vendors at New Ngara, Kiamaiiko (Goats), Maasai, Sunken (High court), Yaya, City Stadium, Maziwa, Jericho, Kahawa, Mutindwa; Traders at self-constructed market at Kibera, Jericho, Kariobangi North, Kariobangi South; Wholesale traders at Wakulima Market; Hawkers Market at Muthuruwa hawkers market; Retail market vendors at Landhies Road, Shaarvi Moyo, Jogoo road, Umoja 1, Westlands, Westlands Curio, Quarry Road, Njara, Karen, Githurai, New Pumwani, Dandora A–F, Kariokor, City Market; Traders at Kenyatta, Kayole, Kahawa West, Mathare North, Umoja 2(A and B).</td>
<td>2 days</td>
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<tr>
<td><em>Kigali, Rwanda (interviews):</em> 2 bicycle riders, 5 motorcycle riders, 5 market traders, 2 porters, 5 fruit vendors, leaders of Rwanda federation of motorcycle drivers</td>
<td>2 days</td>
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<tr>
<td><em>Accra, Ghana (interviews):</em> 10 street traders (Ring Road, Castle Road, Samora Machel Road, Lila Limann Road); 2 market traders; 2 farmers</td>
<td>2 days</td>
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<tr>
<td><em>Dar es Salaam, Mwanza &amp; Moshi, Tanzania. Focus groups (interviews):</em> 15 food vendors in Dar es Salaam, 10 street traders in Mwenge and Ubungo Dar es Salaam, 5 motorcycle operators, 6 curio market traders, 12 itinerant traders of whom 4 are in Dar es Salaam.</td>
<td>2 days</td>
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<tr>
<td>Informal operators based in different sub-sectors <em>Dar es Salaam, Mwanza &amp; Moshi, Tanzania (interviews):</em> A survey covering 179 operators</td>
<td>4 days</td>
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<tr>
<td><em>Nairobi, Kenya (interviews):</em></td>
<td>2 days</td>
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<tr>
<td>Representatives of cooperatives or associations</td>
<td>Kenya Alliance of Street Vendors and Informal Traders; Kenya Private Sector Alliance (KEPSA); Gichomba Market Group of Fish sellers; <em>Kigali, Rwanda (interviews):</em> UMWALIMU SACCOS, Vegetable and Fruit Vendors Cooperative, Rwanda Association of Furniture Makers (ADARWA), Rwanda Cooperative Agency,</td>
<td>2 days</td>
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<tr>
<td>Data source</td>
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<tr>
<td>Rwanda (Sytramorwa), a cooperative of motorcycle transporters, Motorcycle Riders (FERWACOTAMO), Private Sector Federation.</td>
<td>2 days</td>
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<tr>
<td>Accra, Ghana (interviews):</td>
<td>2 days</td>
<td></td>
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<tr>
<td>Ghana Association of Employers; Ghana Association of Traders Unions; Ghana Private Road Transport Association; Ghana Market Women Association; Ghana Union of Traders’ Associations (GUTA); Peasant Farmers Association of Ghana (PFAG); Ghana Cocoa, Coffee and Shea nut Farmers Association; Ghana Employers’ Association (GEA); Union of Informal Workers’ Association (UNIWA); Ghana Private Road Transport Union (RPRTU); Trade Union Congress; Makola Women Traders Association</td>
<td>2 days</td>
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<tr>
<td>BUSAC Fund/COWI (A programme that provide grants to private sector organisations who advocate legal and regulatory reforms to local, regional and national authorities in Ghana)</td>
<td>2 days</td>
<td></td>
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<tr>
<td>Dar es Salaam, Mwanza &amp; Moshi, Tanzania (interviews):</td>
<td>3 days</td>
<td></td>
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<tr>
<td>Chama cha Wafanyabiashara wa Mlango Mmoja, Chama cha Wafanyabiashara wa Mnadani, Market Traders Associations, Food Vendors’ Association, Tanzania Chamber of Commerce, Industry and Agriculture – Kilimanjaro Region, VIBINDO Society, Chama cha Wafanyabiashara wa Mboga na Matunda – Mabibo, Maasai Market</td>
<td>3 days</td>
<td></td>
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<tr>
<td>Nairobi, Kenya (interviews):</td>
<td>2 days</td>
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<tr>
<td>Micro and Small Enterprise Authority; Nairobi County; Youth Development Fund; Microsave (Senior Manager - Micro, Small and Medium Enterprise Finance)</td>
<td>3 days</td>
<td></td>
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<tr>
<td>Kigali, Rwanda (interviews):</td>
<td>3 days</td>
<td></td>
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<tr>
<td>Rwanda Development Board, Ministry of Trade and Industry, Bank of Rwanda Development Bank, University of Rwanda Entrepreneurship Centre, Kigali City Council, Workforce Development Agency, Kenya Commercial Bank, Rwanda Cooperative Agency</td>
<td>(continued)</td>
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<tr>
<td>Data source</td>
<td>Data format</td>
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<tr>
<td><em>Accra, Ghana (interviews):</em> Ghana Planning Commission; Ga East Municipal Assembly; Ga West Municipal Assembly; Accra Metropolitan Assembly</td>
<td>1 Day</td>
<td></td>
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<tr>
<td><em>Dar es Salaam, Mwanza &amp; Moshi, Tanzania (interviews):</em> Ilala Municipal, Muhimbili University of Health and Allied Sciences (MUHAS), Moshi Municipal Council, Mwanza City Council, Property and Business Formalisation Program</td>
<td>2 days</td>
<td></td>
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</table>
Appendix 2

<table>
<thead>
<tr>
<th>Forum</th>
<th>Participants</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presentation and discussion at a validation event at BEST-Dialogue,</td>
<td>University of Dar es Salaam, Property and Business Formalisation Program,</td>
<td>November 2015</td>
</tr>
<tr>
<td>Dar es Salaam</td>
<td>VIBINDO Society (apex of informal operators), Research on Poverty</td>
<td></td>
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<td></td>
<td>Alleviation (REPOA), Tanzania Revenue Authority (TRA)</td>
<td></td>
</tr>
<tr>
<td>REPOA Annual Research Workshop</td>
<td>Researchers, policymakers</td>
<td>May 2016</td>
</tr>
<tr>
<td>International Academy of African Business and Development (IAABD)</td>
<td>Researchers, policymakers</td>
<td>June 2016</td>
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<tr>
<td>Annual Conference held in Arusha, Tanzania</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual General Meeting of Association of Local Authorities in Tanzania (ALAT)</td>
<td>Mayors and executives of 130 local authorities</td>
<td>September 2016</td>
</tr>
</tbody>
</table>

Table AII. Validation events

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Evaluation of the impact of an entrepreneurship training program in Recife, Brazil

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Vanessa Ratten
Department of Entrepreneurship, Innovation and Marketing, La Trobe Business School, La Trobe University, Melbourne, Australia

Abstract

Purpose – The purpose of this paper is to understand in a qualitative context, the importance of the EMPRETEC entrepreneurship training in an emerging country context of Brazil. This helps to understand the capacity of entrepreneurship education to improve the ability of individuals to generate new business opportunities.

Design/methodology/approach – The data were collected through three semi-structured interview scripts and analyzed with the support of the NVIVO qualitative analysis software using Bardin content analysis.

Findings – The findings support the assertion that in emerging economies, entrepreneurship education is increasingly important in transforming society through enabling individuals to progress in their careers and life.

Research limitations/implications – It was concluded that the EMPRETEC course fulfilled the objective of encouraging entrepreneurial behavior and stimulating the trainees to contribute to the economic growth of the country. The implication was that participation in entrepreneurship education is strictly interconnected to the success of the trainees.

Practical implications – The study found that there are positive practical outcomes for the trainees’, teachers’ and managers’ perceptions involved in the Entrepreneurship Training Program – EMPRETEC.

Originality/value – The paper helps understand the role of the trainees’ (EMPRETECos), teachers’ and managers’ perceptions of the Program at SEBRAE/Recife about the impact of the Entrepreneurship Training Program – EMPRETEC.

Keywords Emerging economies, Brazil, Entrepreneurship education

Paper type Research paper

Introduction

Because of the correlation of entrepreneurship with economic progress, development agencies, universities and institutes, among others, are focused on entrepreneurial training at the national or local level. The practice of entrepreneurship is increasingly common in Brazil as a career option, given the socioeconomic difficulties that afflict the country and limit the opportunities for citizens who want to enter the labor market. According to the Global Entrepreneurship Monitor (GEM) survey (2015), 34 per cent of Brazilians state that they would prefer to own their own business instead of having a formal job. Currently, when comparing the data between 2012 and 2014 with 2015, there was a reduction of 70 per cent to 56.5 per cent of the total number of entrepreneurs motivated by opportunity and not of necessity, in relation to the initial entrepreneurs.
Entrepreneurship is the formation of value by people and/or organizations that invest in the implementation of an idea generated from creativity, capacity for change and intention to face risk. Thus, entrepreneurship can be considered as a stimulus for the individual to use their rational and intuitive potentialities by seeking self-knowledge in a constant process of learning. This involves individuals being receptive to new experiences and paradigms (Costa et al., 2007). SEBRAE (Serviço Brasileiro de Apoio às Micro e Pequenas Empresas) is the abbreviation of the Brazilian service to support micro and small enterprises. The Brazilian government established SEBRAE in 1972 to increase the competitiveness of the small business sector. The goal of SEBRAE is to focus on entrepreneurship training by developing a unique entrepreneurial ecosystem that relates to the Brazilian context. A range of topics are taught through SEBRAE but its unique feature is on credit orientation, which focuses on making use of financial systems specifically microcredit to harness the entrepreneurial potential of the Brazilian people. In addition, while most entrepreneurship education programs in developed countries focus on high-technology products and services, SEBRAE focuses on artisan and craft entrepreneurs, who are a large component of the overall self-employed workforce in Brazil (Ratten, 2014). Thus, these artisan and craft entrepreneurs are taught through SEBRAE program-specific skills that help them develop their business ventures.

Currently, SEBRAE is considered the largest entrepreneurship training center in Brazil, offering the EMPRETEC Program in several national capitals. The aim of SEBRAE is to train micro and small entrepreneurs, presenting them with managerial tools of entrepreneurship training, specifically the business plan for the opening and management of a company. It is reported that the knowledge related to these managerial tools are linked to the continuous professional training and entrepreneurship of the entrepreneur. Large entrepreneurs training centers, such as SEBRAE, can offer valuable contributions to the educational sectors at the middle and higher levels, making programs more suited to trainees' needs and expectations. This involves favoring the broader and more diversified training not being restricted to the planning of new business. The data analysis of entrepreneurship training centers can help in the construction of a training of non-corporate entrepreneurs professionals, aimed at the development of entrepreneurial skills (Lima et al., 2015).

As it is necessary to articulate between the practice and the knowledge of the entrepreneur, the dissemination of entrepreneurship is a process that composes attitudes and characteristics, rather than composing knowledge. This involves understanding the learning process components such as emotion, the concept of self, creativity, nonconformity and persistence (Fernandes et al., 2013). However, there are still few studies of the analysis of the Entrepreneurship Training Programs – EMPRETEC – conducted in Brazil by the Brazilian Service of Support to Micro and Small Enterprises – SEBRAE. Therefore, this study presents some data analysis that focuses on the perceptions from the participation of EMPRETECos. The teachers and managers of this program were also analyzed to understand the impact of Entrepreneurs Training program – EMPRETEC in the professional practice of its participants.

Previous research by Alchieri et al. (2016), Costa (2015) and Costa and Dias (2015) focused on the value of entrepreneurship training as a tool for training entrepreneurs to open micro and small enterprises. This involves training and good business performance that involve young people and analyzes the development of entrepreneur behaviors that are involved in the EMPRETEC program. Thus, the present study distances itself from these studies by focusing on the perception of students, teachers and managers of the Program at SEBRAE/Recife on the impact of the Entrepreneurship Training Program. The research question of this study is: How is the EMPRETEC program different to other entrepreneurship training programs? And the research issues are: How are emerging economy contexts like Brazil different in terms of their entrepreneurship training programs? And what environmental factors influence the
effectiveness of entrepreneurship training programs in Brazil? Thus, the main objective of this
study is to focus on understanding: What are the trainees (EMPRETECos), teachers and
manager’ perceptions about the impact of the Entrepreneurs Training Program –
EMPRETEC (SEBRAE/Recife) in the capacity to improve current business and/or generate
new opportunities? To answer this question, the SEBRAE and the EMPRETEC Program are
analyzed to contextualize the entrepreneurship education process in an emerging economy.

Adult entrepreneurship training and pedagogical approach

Entrepreneurship training

In recent years, there has been a growing and increasingly global interest among
international agencies (such as the World Bank), as well as regional, national and
local institutions in testing and mainstreaming entrepreneurship education and training
initiatives. This is particularly important in emerging economies such as Brazil that are
growing fast but need to facilitate the growth of self-employed people. In Brazil, there is a
large entrepreneurial class that is often forced into self-employment because of necessity
reasons. This has made it important for organizations like SEBRAE to have tailored
entrepreneurship programs for these necessity-based entrepreneurs.

As the interest of policymakers and students in how to inculcate entrepreneurial thinking
and skills has grown, so has the legitimacy of this field of study been established and
consolidated (Mwasalwiba, 2010). In this context, researchers have contributed to an evolving
definition of what constitutes entrepreneurship education and training (Dickson et al., 2008;
Beynon et al., 2014). Ideally, education and training specifically aimed at stimulating
entrepreneurship should focus both on inputs and outputs, including the supply side to transmit
the type of mind-sets and skills associated with entrepreneurial activity. In addition, the demand
side needs to be analyzed due to the designing of curricula with a high potential for engendering
successful entrepreneurship outcomes (Martín-Cruz et al., 2012; Shinato et al., 2013).

Training and education dimensions of entrepreneurship promotion are customarily
categorized separately, despite the clear overlap and mutual interaction between them.
However, in countries such as Brazil, it is important to take into consideration the socio-
cultural gap between low- and high-income individuals when designing entrepreneurship
programs. Broadly speaking, both aim to stimulate entrepreneurship, but they do so by
pursuing distinct aims or outcomes. Educational programs tend to focus on building
knowledge and skills that will feed into and boost entrepreneurial intentions and practices in
a general sense. In contrast, training programs focus on providing the specific knowledge
and skills required to start and/or operate a firm (Robb et al., 2014). It is the latter approach –
namely, training for successful and sustainable business start-ups – that constitutes the
focus of the present study.

It is increasingly recognized that entrepreneurship education and training can be useful to
a large number of global and economic imperatives, ranging from job creation to poverty
reduction and innovation (Alvarez and Barney, 2014; Hussain et al., 2014). As a result,
Entrepreneurial Education Programs are being developed in public and private higher
education institutions in several countries, including Brazil (Robb et al., 2014; Valerio et al.,
2014; Alchieri et al., 2016). As a result of the dissemination of the benefits of entrepreneurship,
authors such as Valerio et al. (2014) concluded that, in addition to creating a program, there is
a need to conceptualize the best entrepreneurs training model, as well as to analyze the
contribution of such programs in income and innovation formation, so that the complexity
and essential heterogeneity of the program content can be adequately assessed.

The relevance of this theme is to enable the insertion of education and entrepreneurial
training in the Brazilian educational context. This enables a critical analysis of the process
of training human skills and abilities that are appropriately inserted in the current capitalist, competitive and globalized society that requires development of human potential (Kollmann and Stockmann, 2014). Thus, some studies have focused on entrepreneurship and adult education, such as the studies of Harkema and Popescu (2015), Hägg and Kurczewska (2016) and Mandel and Noyes (2016).

Harkema and Popescu (2015) described a program that was developed for refugee women living in The Netherlands aimed at stimulating entrepreneurial behavior and acquiring skills and knowledge needed to further develop their ideas and start their own business. The program worked on principles of a student-centered approach, taking into account factors important to adult learning and entrepreneurship teaching. The paper explores what conditions need to be met to teach entrepreneurship to adults. They illustrate that three factors need to be taken into account: skills, pedagogical approach and environment. Another study by Mandel and Noyes (2016) aimed to analyze entrepreneurship education offerings – programs and courses – among the top 25 entrepreneurship graduate schools in the USA. The motivation was to understand the variety and vitality of these initiatives. In this study, the research target audience are researchers from education programs and business leaders. The authors point out that there are a number of challenges that constrain the way entrepreneurship grows, which is based on the difficulty of finding suitable teachers, mentors and other support resources.

Hägg and Kurczewska (2016), on the other hand, pointed out that the theoretical field of entrepreneurship has given meaning to entrepreneurship education, but they are not concepts discussed in depth, and understand that they have been abbreviated in meaning and purpose, and mainly been treated in isolation from each other. In fact, none of the concepts discussed is sufficient to generate learning by itself; they are interconnected within the learning process to generate knowledge that seeks, from this perspective, the understanding of how these concepts work, individually and synergistically. The study indicates that entrepreneurship education should not focus only on one dimension of the business learning process, such as in actions, but should try to combine all of its elements discussed. In fact, it is understood that in exploring the origins and developments around concepts, the article brings an in-depth understanding that learning around entrepreneurship is very important, decomposing and mutually referring concepts, authors contribute to the call of the theoretical and philosophical understanding in the reinforcement in the education for the entrepreneurship. Finally, Maritz (2017) provided a justified, legitimate and validated model on entrepreneurship education programs (PEE), combining research and scholarship from recent studies in leadership entrepreneurship education. The elaborated research allowed identifying three unique dimensions currently excluded from theoretical research and PEE studies, being distinct contextualization, ecosystems of entrepreneurship and innovation of recent content in entrepreneurship. It also identified updates to current dimensions of PEE, such as online technologies, authentic alignment, causality, efficacy and DIY and technology transfer from the entrepreneurial university. The discussion and model presented in this article can be a starting point for future empirical studies on PEE, developing additional validation, justification and legitimation.

**Pedagogical approach: from andragogy to heutagogy**

The principles of adult learning based on the characteristics built by the experience are used in entrepreneurship education. These principles are, the adult: has accumulated a set of experiences and information; is autonomous and exercises command of their decisions. In addition, adults are guided by objectives; is practical and subject-oriented; demands respect and the motivation of this is both intrinsic and extrinsic. This means they learn best when
they have active participation in the process as each has its own way of learning. Some adults learn better when given time for feedback and reinforcement of learning and learn best in an informal and personal environment. There is a need to provide reinforcement through debates with colleagues, teachers and personal questions about education. This indicates the need to promote and encourage group interactions (Collins, 2004).

These learning principles enabled, over more than a decade, the construction of training programs for entrepreneurial education, which required more than pedagogical and pedagogical knowledge on the part of the instructors. Research has shown that adults, when participating in training programs, sought more than simply acquiring skills or knowledge. Adults normally have much broader goals including the more holistic development of the ability to exercise independence to question, argue and critique values, to build new knowledge, opinions and values. To achieve these objectives, heutagogy was developed, that is, the study of self-determined learning that brings with it both the student’s experience and that of the teacher, generating productive and constructive debates (Hase and Kenyon, 2012; Bhaska, 2015; Blaschke, 2012; Harkema and Popescu, 2015). Heutagogy admits that there is no more room for inflexibility in the world today, and any construction of knowledge by adults requires association with applicability, practicality and creativity. Thus, this favors the ability to use skills in new personal relationships movements, whether professional or not (Hase and Kenyon, 2012; Bhaska, 2015; Blaschke, 2012). The use of heutagogy as the basis of entrepreneurial education made it easier to understand that this education required modification, a movement began around entrepreneurship, caused by the crisis of jobs that the country faced at the time. Brazilian researchers have begun to understand the importance of forming a professional capable of managing their own work. Thus, it was necessary to convert knowledge introduced in the university into service or product (Eckert et al., 2013).

In entrepreneurship education, observation and reflection are important in order to achieve learning based on the incentive to develop multiple intelligences (Andrade and Torkomian, 2001). Particular mention should be made of the fact that entrepreneurial education requires intelligences: linguistic, spatial, kinesthetic, musical, intrapersonal, interpersonal and logical, which are experienced by adults and explored by heutagogy. This context makes it easier to understand why entrepreneurship education has no defined formulas or specific techniques. Thus, entrepreneurship education focuses on self-knowledge, knowledge of the other and the world, and the formation of a more complete and critical subject capable of identifying opportunities (Bastos and Ribeiro, 2011). The relation between the multiple intelligences and the development of characteristics of the entrepreneurs is presented as follows: linguistics (oratory, expression and communication); (systemic reasoning, planning and opportunity); body kinesthetic (resistance and energy); musical (sensitivity and perception); intrapersonal (self-knowledge – strengths and weaknesses – trust, determination and tolerance); interpersonal (relationship and leadership networks); and mathematical logic (planning, strategy, systemic reasoning, management and opportunities) (Andrade and Torkomian, 2001).

**Methodology**

In this section, we present the methodological procedures adopted in our study of the perceptions of participants in Entrepreneurship Training Program – EMPRETEC at SEBRAE/Recife about the impact of this entrepreneurship training in the capacity to improve current ones and/or generate new ones opportunities. Considering the fact that this is an exploratory study, it is based on the question:
Q1. What are the trainees’ (EMPRETECos), teachers’ and managers’ perceptions about the impact of the Entrepreneurs Training Program – EMPRETEC (SEBRAE/Recife) in the capacity to improve current business and/or generate new ones opportunities?

This involved collecting and analyzing qualitative data that can answer this question.

According to Cassell et al. (2006), qualitative research approaches social processes associated with delimited groups and little studied. The purpose of this type of research is to elaborate the development or reassessment of approaches, ways of thinking and worlds related to the object studied. In this perspective, it is believed that the purpose of this study is to observe, describe and document aspects of a situation. In addition, they can also be elaborated with the purpose of raising opinions and determining the nature of certain relations. This involves focusing on new ways of analyzing the problem (Taylor et al., 2015; Stickler, 2017).

For the selection of the participants and after the consent and authorization of SEBRAE – Recife/PE, a list of 548 EMPRETECos that had been invited by e-mail to participate in the survey between 2012 and 2013 was consulted. Of these, only 66 answered and, for in turn, 20 were contacted. In addition to the 20 EMPRETECos, 10 teachers/trainers and 3 managers were interviewed. Regarding the participation of teachers and managers, the invitation was also made by electronic means, and the interview was scheduled, which was held at the SEBRAE – Recife/PE, Brazil, at workplace and by videoconference. All 33 participants signed the free and informed Consent Term and authorized the disclosure of the results.

Three semi-structured interviews were used to collect data, applied to EMPRETECos (18 questions and 4 domains), teachers (29 questions and 4 domains) and managers (32 questions and 4 domains), with the purpose of detailing the qualitative aspects of the Program. The interview scripts took into account the dimensions of (I) Identification Data, (II) Professional experience, (III) EMPRETEC: educational/formative process and (IV) EMPRETEC: Impact of EMPRETEC on the life (Professional) of EMPRETECos. The interviews were elaborated from questionnaires used at SEBRAE, the agency responsible for the dissemination and development of the EMPRETEC Program in Brazil.

The analysis of the qualitative data, consisting of the statements of the EMPRETECos participants, trainers and managers, was analyzed according to the technique of content analysis, according to the premises of the method of Bardin (2012), with the support of the computer tool to analyze the data applied to the Sciences Social, denominated NUD. IST, in version 10, Non-numerical Unstructured Data acronym by Indexing, Searching and theorising, better known and marketed by NVIVO company.

A floating reading was carried out to identify each nuance that enriches comprehension of the theme evaluated, contextualizing and recontextualizing the sections, separating them according to their meanings and into categories. In Bardin’s (2012, p. 42) studies, “content analysis encompasses the initiatives of explicit, systematized and expressed content of messages, with the purpose of making logical and justified deductions regarding the origin of the messages.” The proposal consists of the following steps to achieve the content analysis, organized in three phases:

   (1)   pre-analysis;
   (2)   exploration of the material; and
   (3)   treatment of results, inference and interpretation.

In the NVIVO program, each category is a node, in which the texts were grouped to later, by re-reading still floating, to identify subcategories, called inter-nodes in the computer
program. The process was repeated for each interview and in each category until the category became meaningful to be interpreted (Jones, 2007). In adherence to the ethics in research, EMPRETEC teachers and managers were identified by a sequential numbering, so that one could cite the transcription of their lines.

**Results**

Based on the data collected, a qualitative analysis was carried out in two thematic categories to adequately describe the strengths and weaknesses of the EMPRETEC educational/training process to which the research participants had been subjected, through interviews with teachers and managers. In summary, the results indicate that the EMPRETEC course met its objectives to awaken entrepreneurial behavior and encourage graduates to contribute toward economic growth. In fact, starting from the qualitative data, it can be stated that the Entrepreneurs Training Program – EMPRETEC exerted impact on the professional life of graduates in SEBRAE – Recife, supporting national and international research. This assertion has been proven to be seen an increase in the number of own business owners, the statement of income increase, profit margin and employability.

These data confirmed another research conducted by SEBRAE in which more than 90 per cent of respondents from a sample of 1,871 companies stated that after the seminar they achieved a significant increase in profits and had a return on investment in entrepreneurial education (Ferreira Júnior and Ramos, 2013). Similar results were reported by Lima et al. (2015), when they identified that after a seminar using the methodology adopted in EMPRETEC, 16.4 per cent of the participants were employed and expressed their intention to open a new business, a percentage that increased to 40.05 per cent after five years. These authors attributed the percentage increase to the technical preparation that the Program provided, acting positively in the determination of goals, in the planning and in the definition of the opportunity.

Emphasis is given to the constancy of EMPRETEC’s benefits to society in general, since the UNDP report published in 2006 already recognized the effectiveness of the Program, based on the evaluation of social, economic and political impact factors (UNDP, 2006), as others studies such as Harkema and Popescu (2015).

Another fact that indicates that the positive impact of EMPRETEC on the professional life of graduates is the realization that most of them had reached the upper level of schooling, therefore considered the program as an upgrade or cultural improvement important for the exercise of their professional activity. The pertinence of this statement was that most of the interviewees considered that they would indicate the course to friends, relatives or other professionals.

The finding of the present research is even more important when it is identified that Brazil is considered the third largest international power in the formation of entrepreneurs, according to GEM report (2015). They recognized – managers, trainers and EMPRETECs – that the course favored the development of the trainees to identify and take advantage of opportunities, turning them into reality materialized by the creation of financial, social and cultural values for society (Andrade and Torkomian, 2001; Blaschke, 2012).

Research of form and intensity with which the EMPRETEC Program emphasized the questioning of everyday situations, challenges and motivations of their trainees, if corroborated that the capacity to generate knowledge and turn it into wealth and social development: targets for countries depends on the action of institutional agents responsible for generating and applying knowledge.

When analyzing the contribution of the Program to the construction or reconstruction of the perception and the creation of new entrepreneurial opportunities, it can be affirmed that
the entrepreneurial education was determinant. It motivated the participants to acquire a search attitude, a sense of criticism and an interest in everything around them, leading them to identify opportunities, evaluate them and be drivers of their own destiny. Finally, regarding the association of the EMPRETEC Program with the professional success of the trainees, the need was identified for the development of the behavioral characteristics, recognized as practiced by successful entrepreneurs, in their business creation process. Each of the results in terms of categories are listed in Table I.

Evaluation of course on previous knowledge
In Subcategory 1.1, EMPRETECos, trainers and managers were asked about the use and evaluation of the previous knowledge and the daily language of the trainees during the educational/formative process. According to the three managers, knowledge, previous experiences and the daily language of the trainees were valued throughout the classes, with a special focus on sharing for the joint construction and compilation of the trainees’ business experiences. The excerpt exemplifies their opinion:

[...], then the experiences he has, especially the entrepreneurial experiences that are the focus of the program are very important (Manager 3).

All the teachers stated that they had taken care of investigating and encouraging the trainees to present their knowledge, their experiences and their language in the classes, always presenting examples and practical cases and promoting an individualized contact. A teacher’s response exemplifies this view:

That’s a key to the experience of delivering the seminar. If you get examples of entrepreneurial behaviors, knowledge by seeing participants’ examples, the seminar gets richer. So it’s a challenge. If you are going to build a module, discuss an opportunity search module, if you can work that module 100 per cent of the examples of the participants validate much more, for those who set the example and the other participants (Teacher 1).

All trainees responded affirmatively to this question, explaining how the facilitators used an accessible language, exemplified using everyday cases, took into account the personal and professional identity of trainees and attributed the importance of their reports. The following statement exemplifies the opinion of EMPRETECO 8:

Yes. And the example I give is about the facilitators always asking about the professional life of the participants. If they could visualize or could make some analogy between their professional life, some event of their professional life and what was being reported in the course (EMPRETECO 8).

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Table I. Overall results: subcategory and results theme
Challenges and motivations

In Subcategory 1.2, we sought to identify with managers, trainers and EMPRETECos the form and intensity with which the EMPRETEC Program emphasized the questioning of everyday situations, challenges and motivations of their trainees. It was observed that all managers agreed that during the course of the classes, the daily problems and challenges of the trainees were taken into account, with special attention given to the sharing of entrepreneurial experiences, as stated by the Manager 1:

[... ] all this material from each entrepreneur’s experience is used within the context of the course (Manager 1).

Already, according to the teachers, the classes took into account the daily problems, challenges and motivations of the trainees. Emphasis was placed on the need to understand the different realities and experiences and to listen to the experiences. In this stage of construction of the knowledge, by the teachers, examples are given some exercises and sessions of exchanges of experiences. The statement is observed:

Yes! And this is part of the methodology itself. Even at the first moment we work the expectations of the participants, when they arrive at the seminar EMPRETEC, right? And then the whole seminar is developed on top of those expectations for them to be achieved. And we always make it clear that the reach of those expectations is purely and inwardly responsibility of each of the participants (Teacher 9).

The EMPRETECos agreed that in the course of the lessons, they started from their daily problems and their challenges and motivations. Several references were made to the constant presentation of examples, reports, and sharing of experiences. However, there was also a negative response to this question, emphasizing that the course was only praising the success stories:

I think so, I even think it’s a course where the person in the end finds out whether he’s an entrepreneur or not, really. So I think the capacity of each one was worked out. I think they were sensitive to the lack of each. And, and I think each one must have achieved the goal he wanted (EMPRETECo 3).

No, not him, me. In my point of view, they deal more with success stories (EMPRETECo 12).

Development of autonomy and responsibility

Still trying to identify the way in which the premises of entrepreneurship were followed in the EMPRETEC program investigated, named Subcategory 1.3, if inquired, managers, trainers and EMPRETECos as the education/training process to encourage the development of autonomy and responsibility to the students in learning activities. All managers responded in an affirmative way. According to the managers, the trainees, by enjoying autonomy and freedom, are also called to responsibility, as exemplified by the transcribed speech of Manager 2:

[... ] then the course works a lot, a lot anyway [... ] your entrepreneurial self calls you to the responsibility (Manager 2).

According to the teachers, autonomy has always been valued, and students are always given the freedom to make their choices by emphasizing their responsibility and the principle of andragogy and heutagogy, as stated by Teacher 10:

The adult only learns what he wants, adult only does what he wants and the greater the competence he has to relate the new to what he already knows, the better the learning. So that is
the principle of andragogy. It is always respected and highly respected during the seminar environment. And it has total autonomy: what it wants to participate it participates; what he does not want to participate he does not participate (Teacher 10).

The trainees stated that they felt autonomous, free and responsible when carrying out the activities promoted during the course, as a result of the Program’s methodology stimulating participation and valuing their experiences:

All the progress of the course, of course, was directly linked to the trainee’s participation. It was always [. . . ] There were always issues addressed in our experiences and what we already had prior knowledge (EMPRETECo 8).

Participants were invited to report their professional career from the first job until the interview period, in general, it can be said to have been heterogeneous. Many of them were influenced by a family business and internships, in addition to work experience. The outcome of this course resulted, in most cases, in an entrepreneurial initiative, in such a way that EMPRETECos predominated by classifying themselves as entrepreneurs, as well as claiming to assume management or management positions.

Based on the opinions of managers, teachers and EMPRETECos, the impact of EMPRETEC on the personal and professional life of EMPRETEC was identified in the second category, which was used to develop autonomy, behavioral modification and entrepreneurship development of the EMPRETECos trained at SEBRAE – Recife – PE/Brazil (2012-2013).

Behaviour and business management
Thus, in Subcategory 1.4 in relation to the contributions of the EMPRETEC Program – SEBRAE in the life of forming, in general, the managers surveyed thought it EMPRETEC/SEBRAE brought improvements in behavior and business management, exemplified opinion by speech transcribed Manager 3:

  We have a lot of research during these 20 years of course [. . . ] that the entrepreneurs themselves speak [. . . ] I decrease the waste of my company, I hired more employees, I increased my profitability (Manager 3).

Training for decision-making, planning and tracing was, from the point of view of teachers, the most frequent contribution of EMPRETEC/SEBRAE to the lives of trainees. There are also references to knowledge, self-confidence, self-esteem, independence and reflection as other important contributions:

  [. . . ] he leaves the EMPRETEC seminar knowing what a goal is, how to set a goal [. . . ] people can’t achieve their business goals because they do not know what they are. So he has to get away with that very well defined. So, just defining what is a goal and knowing how to behave in an enterprising way to achieve it (Teacher 10).

When called upon to report EMPRETEC/SEBRAE’s greatest contributions to their lives, trainees focused not only on success but also on the importance of knowledge and acquired learning:

  [. . . ] I think so, the knowledge of where you can get, from where, the recognition of this, where you can get, what you can, where you can empower your company (EMPRETECo 12).

Economic and professional improvement
In Subcategory 1.5, aimed to investigate the course of the contributions in the economic and professional improvement of the trainees, managers understood that there was such a
contribution, materialized by an increase in income and the reduction of employee dismissal, as noted in the speech transcribed Manager 1:

Certainly! Certainly! Why EMPRETECo increases his billing after the course, because he dismisses less, why he is more aware of what his company is and how he should conduct his business (Manager 1).

In the opinion of the trainers, the course improved the economic and professional condition of the trainees, with prospects of growth with more business, more revenue, more hiring and new clients. References were also made to improvements in financial, professional and success:

Ah yes! And many cases, myself including speaking as a participant, talking to several colleagues who did the seminar EMPRETEC, there increased revenue, increased profitability, ah [...] managed to get more partnerships, managed to sell more, organize the company, managed to deal Better with employees, with suppliers, with partners and so on. So all this is healthy for business, right? So whether or not you want to end up generating more jobs, generate more income, move the economy (Teacher 8).

In the opinion of the trainees, the course contributed to the improvement of their economic and professional status, as they thus obtained a more professional approach to their business, and achieved better results embodied in higher revenues, stricter financial discipline and more hiring:

Yes, why? Because of the course I changed a lot of the strategies I was doing, a lot of them were wrong, and, and with that, my business increased and increased, I had to get more employees and my income increased too (EMPRETECo 18).

Creation of entrepreneurial opportunities
In Subcategory 1.6, we sought to identify the program’s contribution to the construction or reconstruction of perception and creation of entrepreneurial opportunities. According to the managers’ opinion, the EMPRETECos left the course prepared to perceive and create new entrepreneurial opportunity in the business, as they come to have a clearer notion of risk and the need to change behaviors and strategies:

Yes! They leave prepared and ready. Is when they are not exactly prepared, leave prepared to seek alternatives that can help them is not, to develop these businesses (Manager 2).

According to the teachers, the EMPRETECos leave the course with more propensity to create new business opportunities, having greater involvement and notion of the opportunity when it comes to assessing needs, concepts, innovation, problems and feasibility:

Yes. Focused very in one of the objectives that is to work clearly, in the seminar EMPRETEC more specifically in the morning of the second day, that is the search of opportunities, where one works very that concept. Focus on problems, needs, opportunities (Teacher 3).

[...] mainly because today we work very much on the issue of innovation, which was one of the methodology updates. So much is explored the need to innovate and seek new opportunities in the current market, which is quite competitive (Teacher 4).

From the point of view of the trainees, the course prepared for the perception of new entrepreneurial opportunities in the business. It contributed by giving courage and opening
the mind to a new vision with new perspectives to structure the business. Only non-business graduates answered the question negatively:

Because it gave me a more professional, more organized vision right, how to implement things inside the company (EMPRETECo 3).

No, because I had no business at all. What EMPRETEC did for me was to point out the deficiencies that I had to develop. But I had no business. I was an employee (EMPRETECo 2).

Professional success of graduates
In Subcategory 1.7, the conceptual aspects were investigated, we sought to identify the association of the EMPRETEC program to the professional success of graduates. According to the managers, the EMPRETEC training can be associated with the professional success of the trainees. The trainees get a clearer idea of the quality, the tools and the thinking that drives success:

Yes! I understand that they have the opportunity, they have the opportunity to think, to reflect, about their entrepreneurial profile and what it takes to from there to make a qualitative leap and it is of improvements for their business to those who already have and For those who do not have it (Manager 2).

Almost all trainers responded affirmatively to this question, stating that EMPRETEC has enhanced the ability to make choices, set goals and assess risks. However, some teachers said that this association with professional success depends on the assimilation of training:

[... ] it can and should be associated with success! First they begin to get to know each other more of their entrepreneurial profile. Then they begin to set goals and objectives. Then they begin to behave like successful entrepreneurs, how they behave to achieve their goals and objectives. And that is the path to success, depending on what each one understands as success (Teacher 10).

Half of the graduates are considered to be successful professionals. The EMPRETEC training was considered as a lever for success. The other half of the interviewees do not consider themselves to be professionally successful, but they are seeking success, assuming that the EMPRETEC training can open this path:

He can be associated because that’s what I told him, right? He helped me to discover myself as an entrepreneur. My potential, my gift, if I like it if I do not like to do it (EMPRETECo 3).

Theoretical contributions
This article aimed to present the perceptions of students (EMPRETECos), teachers and managers of the Program at SEBRAE/Recife about the impact of the Entrepreneurship Training Program – EMPRETEC. The importance of EMPRETEC’s entrepreneurial training is the ability to improve current business opportunities and also to generate new strategies and potential possibilities. Thus, considering the objective of the study, it was found that the perceptions of the trainees were understood; these refer that the program included participants with knowledge built by the group, facilitating the autonomy and independence associated with the applicability of EMPRETEC constructs in everyday life. This perception was a result of the methodology used, valuing the participation in the educational process. This finding stems from the educational process itself that marks EMPRETEC, an affirmation for which no evidence can be offered, as the main document to
be supported is the program manual, which must be kept confidential, so as not to disturb
the expectations and the surprise element of the course.

When looking at the question of research:

Q2. What are the trainees’ (EMPRETECos), teachers’ and manager’ perceptions about
the impact of the Entrepreneurs Training Program – EMPRETEC (SEBRAE/
Recife) in the capacity to improve current business and/or generate new ones
opportunities?

It was found that the results were in agreement with the previous literature. The reality
described here reiterates the considerations of Wickert (2011) and Barretto (2013), that
SEBRAE is an institution focused on entrepreneurs with the EMPRETEC course as one of their
educational functions for training individuals, which helps to awaken and develop potential
entrepreneurs among their trainees. Similar results were reported by Lima et al. (2015), when
they identified that after a seminar using the methodology adopted in EMPRETEC, 16.4 per
cent of the participants were employed and expressed their intention to open a new business, a
percentage that increased to 40.05 per cent after five years. These authors attributed the
percentage increase to the technical preparation that the program provided, acting positively in
the determination of goals, in the planning and in the definition of the opportunity.

The actions of EMPRETEC in the educational process of the SEBRAE trainees described
by the participants, it was perceived that the form and intensity with which the EMPRETEC
Program emphasized the problematization of everyday situations, challenges and motivations
of their trainees was satisfactory. In addition, the findings suggested that it was important to
focus on the educational/formative process that aimed to stimulate the development of
autonomy and responsibility for trainees in learning activities. When proving the impact of
EMPRETEC on the lives of the trainees, it is appropriate to analyze the evaluations of their
entrepreneurship training proposal according to the opinion of managers, teachers and
participants of the program. This analysis is in line with the suggestion made by Chepurenko
(2015), stating that entrepreneurship needs research mainly in countries with economies in
transition and emerging markets, aspects of which Brazil has been characterized.

According to UNESCO (1998), adult education and training can be considered as a set of
various learning processes (formal and non-formal) because adults are mature human beings
and develop their skills by enriching their knowledge in order to improve and satisfy their
needs and those of society. The evaluation of EMPRETECos confirms the theory described
by UNESCO, as they understood that the development of the market view and the possibility
of investing in new businesses. This enables better evaluations, planning and goals and
monitoring the results, the search for new technologies from the training in the EMPRETEC
course. The program analyzed here corroborates the literature that entrepreneurship
education has a positive attitude toward business development (Lee and Wong, 2005).

The results allow us to affirm that EMPRETEC is consolidated as an important tool for
disseminating the characteristics of entrepreneurial behavior, contributing to increasing the
level of knowledge of the Brazilian entrepreneur. The teaching and learning methodology of
EMPRETEC is aimed at providing training for entrepreneurship and for promoting
conditions for the development of characteristics of entrepreneurial behavior. The data
allow us to affirm that EMPRETEC is consolidated as an important tool for disseminating
the characteristics of entrepreneurial behavior, contributing to increasing the level of
knowledge of the Brazilian entrepreneur. When it comes to improvements made after
completing a course of improvement or entrepreneurship, it is clear that in the life of the
trainees enables them to progress in their professional career, since it arouses in the trainees
another sense of searching for new professional horizons.
Policy implications
When analyzing the contribution of the program to the construction or reconstruction of the perception and the creation of new entrepreneurial opportunities, it can be affirmed that the entrepreneurial education was important. It motivated the participants to acquire a search attitude, a sense of criticism and an interest in everything around them, leading them to identify opportunities, evaluate them and be drivers of their own destiny. When the student receives the entrepreneurial stimulus and is infected by the germ of wanting to do and being able to do, the student will be able to mobilize themselves and to constantly rebuild their entrepreneurial profile. This enables the adaptation of the required profile by the constantly changing market or to add new skills and abilities, according to the study of Senna (2010). Regarding the association of the EMPRETEC Program with the professional success of the trainees, it was identified the need to develop the behavioral characteristics, admittedly practiced by successful entrepreneurs, in their business creation process. Similarly, this behavior must be present in the management practice of a company, thus contributing to its evolution and sustainability, to face the need for an increasingly professional management of the small business.

Among these knowledge, it is possible to mention the development of design thinking, to follow the evolution of the pertinent literature, reducing the risk of death of companies. This training, called the second round, should be extended to managers and teachers, as they play a very important role in the training of entrepreneurs. The use of design thinking in the formation of entrepreneurs can inform them more properly so that they use methods, values and concepts, potentializing the solution of managerial problems that can help in the formation of companies with greater chance of success. Another aspect that could make up the second stage of EMPRETEC would be the practice of the Business Model Canvas, known as Canvas, as it is a strategic planning tool, using visual maps, enabling better business evaluation. In summary, the results of this research made it possible to identify that the entrepreneurial training offered by SEBRAE provided conditions for the trainees to carry out their activities employing the entrepreneurial administration.

Managerial implications
The statements of managers, teachers and EMPRETECos about stimulating the development of autonomy and responsibility for the trainees in the learning activities indicated that the program obeyed the principles of adult learning, as for the education/entrepreneurial formation they demanded of the teacher’s more than one transfer of knowledge. There was a result of the work of the teachers, using the fact that adults, when participating in training programs, seek more than simply acquiring skills or knowledge. Teachers and managers sought to stimulate the holistic development of the ability to exercise independence to question, argue and critique values, to build new knowledge, opinions and values, therefore using the principles of heutagogy. It seems appropriate to affirm that the program sought to offer a self-determined learning stimulating the debate between teacher and student based on the student’s experience, according to others studies (Hase and Kenyon, 2012; Bhaska, 2015; Blaschke, 2012; Harkema and Popescu, 2015). Adherence to the principles of heutagogy was also evident in the statement of the manager and EMPRETECo, pointing to the construction of a knowledge associated with applicability, practicality and creativity, to develop the ability to use skills. This is in line with the approaches of the following researchers: Hase and Kenyon (2012), Bhaska (2015), Blaschke (2012), Eckert et al. (2013). The data on the interviews with managers, trainers and EMPRETECos pointed to a positive aspect, among the EMPRETEC evaluation criteria admitted in this study, which consisted in facilitating the development of entrepreneurial behavior.
Limitations and future research suggestions

From the consultation to the article by Alain and Liñán (2014), two limitations were identified related to the influence of the economic context and the motivational factors in the intention to undertake the trainees. The motivational factors of the trainees to create new businesses after their participation in the EMPRETEC Program were neither investigated, nor was it possible to evaluate the impact of the course on the economic context and the financial life of the trainees. This gap, however, motivates to suggest to the SEBRAE that in the long term, investigate with the trainees these two aspects, for better adaptation of the course and increase of the social benefits.

These limitations identified in our research were the subject of a more recent article by Liñán and Alain (2015), demonstrating that there are several aspects not yet investigated, varying from methodological aspects to the evaluation of intentions, local culture, the socioeconomic context of the trainees and the decision to undertake. The results here provided are relevant for the identification of contributions to the Academy and for the training of EMPRETECos, as well as to serve as a basis for suggestions. It is suggested that the Program allows the interested parties a second round of training, six months after the end of the first stage, so that they can jointly evaluate the benefits obtained from the course and acquire new knowledge. More research is required on how emerging economy contexts like Brazil have different entrepreneurial ecosystems that require tailored entrepreneurship education programs. It would be useful for more longitudinal analysis to see how the micro and small business enterprises utilize the training at EMPRETEC Programs and what courses are most beneficial in the long term. This could involve detailed case study analysis about specific entrepreneurs in terms of how they have used their training.

References


Further reading


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Understanding the intentions of informal entrepreneurs in Peru

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Abstract

Purpose – This paper aims to focus on the influences that lead individuals to create and continue with operating informal business ventures in Peru. It seeks to empirically identify the factors that are significant in forming the intentions of entrepreneurs to begin or continue with their informal businesses.

Design/methodology/approach – The theory of planned behaviour (TPB) is applied using data gathered from interviews with informal domestic gas cylinder sellers using a formally conducted survey. Using structural equation modelling, the constructs that influence the entrepreneurial intentions of informal gas sellers in Lima, Peru, are determined.

Findings – Of the three TPB constructs, attitude was found to be most significant, reflecting a belief of informality’s benefits, social norm was also significant, revealing the importance of the opinions of family, whereas perceived behavioural control was found not to be significant.

Originality/value – These results provide confirmation of a policy approach developed to address the high rates of business informality while maintaining safety in a highly regulated industry segment. By providing insight into factors beyond economic drivers, the study reveals that an understanding of the prevailing social environment is important for the development of policies dealing with informal entrepreneurship.

Keywords Peru, Entrepreneurial intention, Theory of planned behaviour, Informal entrepreneurship

Paper type Research paper

Introduction

Informal entrepreneurship is a significant phenomenon, particularly in the developing world (Light, 2013), where the size of a developing economy’s informal sector can be large in relation to its GDP (Gërxbhni, 2004). Across Latin America, the informal economy is estimated to be approximately 43 per cent of national output (Schneider and Bajada, 2017) and is responsible for 51 per cent of non-agricultural employment (Vanek et al., 2014). In Peru, the informal economy is estimated to be close to 60 per cent (Schneider and Bajada, 2017). The apparent size and economic importance of economic informality initially led to studies to focus on its marginal nature, though studies are now incorporating a country’s social and economic dynamics (Gërxbhni, 2004). Economic informality is considered to have deleterious effects on a country’s economic performance, by contributing to low productivity levels and stifling the growth of formal businesses (Farrell, 2004), congesting public services and leading to smaller tax bases (Jaramillo, 2009; Schneider and Bajada, 2017). Informality

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has been related to a country’s economic settings (Loayza, 2004) and regulatory regime (De Soto, 1989; Dau and Cuervo-Cazurra, 2014; Portes and Haller, 2004; Abdallah, 2017) and is influenced by a society’s social and cultural norms (Friedman et al., 2000; Muralidharan and Pathak, 2017; Sutter et al., 2017; Thai and Turkina, 2013). More recently, the interrelationships between these two types of institutional settings have also been found to have some influence (Williams and Horodnic, 2016).

With an increasing focus on economic informality comes a consequent interest in entrepreneurship’s informal variant (Williams, 2013). An entrepreneur, someone who is actively involved in starting a business or is the owner/manager of a business venture, can be defined as being informal if they are involved in “monetary transactions [that] are not declared to the state for tax and/or benefit purposes when they should be declared but which are legal in all other respects” (Williams et al., 2012, p. 529), which distinguishes it from antisocial intent and unacceptability of criminal illegality (Webb et al., 2013).

While some characteristics of informal entrepreneurs have been studied (Williams and Nadin, 2010), little research has been devoted to individual-level factors or motivations of informality (Webb et al., 2013) or on the entrepreneurial intention (EI) of informal traders (Liñán and Fayolle, 2015). These types of data can be used to develop policies that address the levels of informality (Smallbone et al., 2014; Williams, 2013) and to understand the influence that institutions have on EI and informal venturing (Fayolle and Liñán, 2014, Liñán and Fayolle, 2015). As such, this paper aims to contribute to our knowledge of EI in the context of informal business ventures through a further understanding of intentionality and its influence upon informal entrepreneurs.

The recognition of informal entrepreneurship has grown so that now an entrepreneurship study is viewed as incomplete without its consideration (Welter et al., 2015). So we can find studies that include those that were not previously considered by the normative concept of entrepreneurship (Peredo and McLean, 2010), helping us to improve our knowledge of how businesses are formed and conducted in unfavourable environments (Khoury and Prasad, 2015; Kolk and Rivera-Santos, 2016). This research direction not only improves our understanding of entrepreneurship’s role in terms of social progress or change in developing countries (Williams et al., 2017), it also helps to place informality in its proper context (Ram et al., 2017). Although for some research topics, the literature predominantly applies to developed countries (Abdallah, 2017).

As informal entrepreneurship is a subset of entrepreneurship it should therefore share some of the same determinants and antecedents (Thai and Turkina, 2013). Bird (1998, 1992) viewed venture creation to be an outcome of intentions. Intention-based models include the theory of planned behaviour (TPB) (Ajzen, 1985), which has become a predominant model for specifying EI (Fayolle and Liñán, 2014). The TPB has been extensively used to investigate the attitudes and beliefs underlying mainstream EI (Kolvereid, 1996; Krueger et al., 2000; Autio et al., 2001; van Gelderen et al., 2008), to predict venture creation in Latin America (Serida Nishimura and Morales Tristán, 2011), and, it has also been used to investigate undesirable behaviours (Beck and Ajzen, 1991; Burak and Vian, 2007). Its simple parsimonious model and data gathered through a simply structured unobtrusive questionnaire make it a good choice for surveying entrepreneurs about sensitive topics, such as informal entrepreneurship (Ram et al., 2007).

Here we apply the TPB to identify the factors that contribute to the intentions of an individual to operate an informal business selling domestic gas cylinders in the Peruvian capital city of Lima. This paper proceeds to review of the informal sector literature and situate informal entrepreneurship in the context of Peru. The third section details the TPB’s use with regard to EI, the proposed model and the hypotheses to be tested. Fourth section
outlines the study’s data and methods and the fifth section presents the results of the statistical tests used for data analysis. The paper closes with a brief discussion of the results and implications for theory, practice and future research.

**Informal entrepreneurship**

Hart (1970) initially characterised economic informality as entrepreneurs – individuals and their businesses – avoiding government regulations and taxes, driven to this state by high inflation, inadequate wages and labour supply surpluses. Because of this early characterisation, informal entrepreneurship has become synonymous with low-income economies and marginalised groups, though it exists in all countries regardless of economic system (Williams and Nadin, 2010; Williams, 2013a; Welter et al., 2015).

There are a range of individual-level reasons for why entrepreneurs engage in informality. Prominent is the assumption that informal entrepreneurs are somehow marginalised and operate informally due to economic necessity, or pushed into informality for survival (Edoho, 2016). Although, while many informal entrepreneurs may begin out of necessity, they can move into opportunity entrepreneurship or to formality (Williams and Nadin, 2010; Sutter et al., 2017), with the motivations for entering and continuing on in informality changing overtime and being influenced by social as much as economic reasons (Welter et al., 2015). Some, though, make a conscious decision against formalisation, in effect choosing to be or to remain informal (Gerxhani, 2004; Jaramillo, 2009). These see informal entrepreneurship as a voluntary and positive self-selection process (Pisani and Pagan, 2004). This challenges the perception of informal entrepreneurship being conducted out of necessity; for while some will continue to operate as small fragile units, others may achieve considerable size, turnover and employee numbers (De Castro et al., 2014).

Similar variation exists in just how informal an enterprise may be. Williams (2013a) found some enterprises to be wholly informal with no intention to formalise and others were partially informal with no further formalisation intentions, whereas another group operated informally but were transiting to formality. Significant numbers of registered businesses in Europe were found to conduct infrequent informal transactions (Williams, 2008), with geographic location, affluence (Williams, 2011) and an entrepreneur having an existing job (Williams, 2007) identified as influencers of informality rates and types. Many of those working in these informal enterprises are self-employed, operating small-scale and localised ventures (Adom and Williams, 2012). These various descriptions support De Castro et al.’s (2014) view of informality as a multidimensional continuum, where an entrepreneur chooses to manage their interactions within the context of a prevailing institutional environment and moderates their informal business relations to suit.

While the dynamism of informal entrepreneurs was initially seen to be solutions for urban poverty, this view changed with informality becoming to be perceived as a challenge to formal private sector led development (Hart, 2010). Policies to encourage and facilitate the transition of the informal entrepreneur into the formal economy have been recommended (ILO, 2009; Edoho, 2016), underpinned by interpretations that informal enterprises are stepping stones toward mainstream economic inclusion (Bennett, 2009), that a period of informality strengthens a business’ viability, performance and success by enabling the business to fully establish (Williams, 2013a; Williams et al., 2017). Another perspective of informality views the dynamism of unregulated markets in rapidly growing cities as a response to these hectic environments, where people devise prosperity strategies within these complex social situations (Hart, 2010), which Williams and Nadin (2012) referred to as a hidden enterprise culture.
However, a consequence of informality is that many of these enterprises are unable to capitalise on the benefits of scale, face limited access to credit and are likely to be negatively affected by weak property right enforcement and contract enforcement (Ferreira-Tiryaki, 2008; Edoho, 2016). Thus, governments wishing to reduce the undesirable impacts of informality have been advised reduce factors that may exclude a business operating more formally through targeted interventions to reduce perceived obstacles such as access to finance, taxation complexity and regulation (De Soto, 1989) and through social conditions by fighting street crime and corruption (Schiffer and Weder, 2002). Some can thrive despite of these barriers, producing better business and growth performances than some of their formal counterparts (Abdallah, 2017; Williams et al., 2017). Informal enterprises are also affected by the relative quality of a country’s state institutions and legal system, which when poor are contributor to informality (Autio and Fu, 2014; Dabla-Norris et al., 2008). Inadequate tax systems in emerging economies can also affect informality in terms of firm growth, where low levels of enforcement create imbalances that favour informal firms (Abdallah, 2017). So, the existence of informality cannot be attributed to a single cause with a complimentary solution; rather it is complex (Light, 2013) and due to a range of variables and contexts (Williams, 2013b).

The solutions to informality are enacted through the country’s social and economic institutions. Institutional structures are sourced from the belief structures of a society and act as codifiers of both the formal and the informal rules of behaviour (North, 1994). Informal ventures are by definition those that do not adhere to the prevailing formal institutional rules: they are extra-legal from the institutional point of view, but possess legitimacy in the eyes of the venture’s owners and customers (Webb et al., 2009). Thus, informal entrepreneurship becomes pervasive, and embeds itself into the country’s economic framework, continued by the absence of any compelling reasons for informal entrepreneurs to comply with the prevailing formal rules (Ram et al., 2007). This is reinforced when formal and informal institutional norms are out of alignment, a situation that acts to increase informality rates (Williams and Horodnic, 2016).

Thus any response must be multifaceted (Light, 2013) requiring a focus on structural settings which encourage it (Williams, 2013b) while accounting for divergent needs by devising specifically tailored policy measures (Williams, 2013a; Williams and Nadin 2012). These measures come in the form of stronger deterrents, penalties and improved detection capabilities or facilitating business formalisation (Schneider and Williams, 2013). Though while addressing the determinants of informality or formal institutional settings can be undertaken quickly, the social context or a society’s informal institutions can take longer time to change (Webb et al., 2013). Schlaegel and Koenig (2014) pointed out that “formal institutional contexts (laws, regulations, and policies) as well as the informal institutional context (cultural norms and values)” (p.320) influence EI. Therefore, for a developing economy, the dynamics of institutional interactions are particularly important for understanding informality (Gërxhani 2004) and context is equally important to understand a person’s entrepreneurial actions (Zahra et al., 2014).

This milieu of entrepreneurship promotes a heterogeneity of motivators, conditions and drivers of entrepreneurship and fuels the debate over informality and between its causal theories that focus on economic institutions and structures, burdensome levels of regulation or the processes of voluntary selection (Chen, 2012). It is known that some of the self-employed choose to be informal; whether it be to avoid tax or from bureaucratic complexity or additional costs, continuing on in this state despite the negative consequences (Chen, 2012). Indeed Maloney (2004) suggested that we view developing country informality as analogous to voluntary small firm sectors in more developed economies, where rational
actors’ decision-making takes into account all of that which informality provides. In these cases, entrepreneurs, particularly women, are taking advantage of work flexibility (Rothenberg et al., 2016), improved independence or perhaps opportunities for higher incomes (Maloney, 2004). By choosing to be informal, they may also be offsetting liabilities of smallness until they accrue sufficient scale or competency (Williams and Horodnic, 2016), be limiting their visibility to avoid pervasive corruption or they may be following social norms (Chen, 2012).

As such, should public policy be to promote formalisation, then the issue of context is particularly relevant. Nelson and De Bruijn (2005) suggested that governments understand how these transitions can be win-win, rather than being one sided and compliance focused, whereas Sutter et al. (2017) pointed out that that many formalisation processes may not be adequately accounting for the influences and roles of norms, values and social institutions.

The Peruvian context
Peru exhibits many of Latin America’s economic and institutional determinants of informality. In particular, Peru’s low levels of education, rapid demographic change and extractive industrial structures provide the ingredients for a high degree of informality through its overly complex legal framework, a poor quality of government services and a weak state presence (Loayza, 2008). Peru’s informal institutions are characterised by the society’s low levels of interpersonal trust (Díez Medrano, 2014) underpinned by the nation’s collective cultural values, where an individual identifies with a social “in-group”, with which he/she has a strong affinity and to which he/she subordinates his/her personal goals (Hofstede, 2001). This cultural orientation tends to exhibit high trust within the in-groups, whereas low trust is expressed to those on the outside (Huff and Kelley, 2003). In terms of firm ownership, Peru has a dominance of family-based enterprises (PwC Perú, 2013). Much of Peru’s labour force engaged by small businesses, where 64 per cent of Lima’s labour force have been found to be working in enterprises with fewer than ten people (INEI, 2013).

In the 1990s, many Peruvian informal entrepreneurs existed in hiding. By doing so, they avoided paying bribes and took advantage of weak state enforcement, while being affected by limited property rights and poor contractual enforcement (Bird, 2013). At this time, Peru began to implement a range of formalisation enablers such as real property registration to improve access to collateralised credit, the expansion of access to micro credit and business registration reform (Field and Torero, 2006). While these initiatives led to reduced taxation complexity, duplication, business registration costs and completion times, they have had little effect on Peru’s overall rates of business informality (Bird, 2013). Webb et al. (2013) pointed out that such fast paced institutional reforms may not produce the desired outcomes of lowering informal entrepreneurship; rather they may produce a vicious cycle of continuing informality. Bird (2013) considered that this is what occurred in Peru; the existing informal firms became squeezed, unable to grow due an ever-growing and crowded market eroding existing ventures’ margins and leading to suboptimal profitability. Moreover, the Peruvian “drive for independence” (Bird, 2013, p. 153) and subsistence wages drove skilled staff to leave their employment to create even more informal businesses. While most Peruvian firms see no advantage of informality, few become licensed; the main predictors of formalisation being an owner’s education level and a wish for firm visibility (Jaramillo, 2009). While paradoxical, it reflects that for some, formalisation is not desirable at any cost or few of formalisation’s advantages are ever realised. These perceptions may be a reason for Peru’s continuing high rates of informal entrepreneurship. In this respect, the TPB is a useful research resource, as its application provides insight into the intentions of a person who may be beginning to or maintaining an informal venture.
Proposed model and hypotheses
This study applies the TPB as the method for assessing EI. From social psychology, the TPB contributes to the understanding of entrepreneurial behaviour through its underlying assumption that intention predicts behaviour (Kautonen et al., 2013a).

The TPB uses the constructs of attitude, social beliefs and feelings of being in control to hypothesise that the performance of a particular behaviour is a function of the intention to perform such behaviour (Ajzen, 1985). The Intention construct summarises the motivational factors that influence the actions of behaviour (Ajzen, 1991). Intention, in turn, is determined by three additional constructs: attitude, subjective norm and perceived behavioural control (PBC). Attitude is conceptualised as a positive or negative evaluation of people to carry out their behaviours. The subjective norm refers to the pressure that people perceive from significant others to perform or not perform behaviour (Ajzen, 1991). The third construct and predictor of behavioural intentions, PBC, represents the ease or difficulty to perform a behaviour and its influence on both intention and behaviour (Armitage and Conner, 1999). In effect, PBC reflects the degree of control a person believes that he/she has over a situation (Rivis et al., 2009). The TPB’s theoretical specification has been found to be sufficiently detailed and consistent though a number of tests, advances and critiques for the TPB to have been extensively used for identifying EI (Kautonen et al., 2013a) and it has been found to be robust enough to support its use in the context of business start-up behaviour (Kautonen et al., 2013b).

While there is growing research on the motivations and drivers of informal entrepreneurship (Adom and Williams, 2012; Pisani and Pagan, 2004; Webb et al., 2009; Williams et al., 2012, Williams and Nadin, 2010) and substantial use of the TPB for EI (Kautonen et al., 2013a; van Gelderen et al., 2008), the authors were unable to locate any TPB studies using solely informal entrepreneurs. We therefore took a lead from the extant informal entrepreneurship and undesirable behaviour literature to develop the research model. Figure 1 presents the research model depicting how the constructs are hypothesised to contribute to informal EI.

Attitude toward casual intention
Within the classification of informality, workers who opt to create their own work are considered to be self-employed (Harding and Jenkins, 1989) and may choose to operate
informally, possibly as an alternative to more exploitative or marginally economic employment, following a weighing up of the detection and penalty risks (Perry et al., 2007; Gërshxani, 2004; Cross, 1997; Bird, 2013). Bird (2013) suggested that Peruvian entrepreneurs are motivated to operate their own business through a drive for independence, while gaining a sense of personal pride. The TPB proposes that these types of perspectives and beliefs will affect an individual’s later attitudes and behaviours. Empirical TPB research has also indicated that attitudes are significant antecedents of the intention to undertake illicit activities such as downloading pirated movies and making under-the-table payments (Morton and Koufteros, 2008; Burak and Vian, 2007). This leads to the first hypothesis:

H1. Personal attitude positively influences the intention to operate an informal enterprise.

Subjective norm
In subsistence economies, the influence of a social networks is important, particularly through family ties or from people in the same household, where this concentrated level of confidence and support will help to maintain a greater involvement in developing or operating the venture (Aliaga Linares, 2002). Peruvian entrepreneurs are sensitive to social cues and social status and they are motivated by the social attribution that being an independent business owner provides them (Bird, 2013). This sense of accomplishment reflects as much on the individual as it does on their group. Thus, in a collectivist society like Peru, the social norm is likely to important to an individual as part of their decision making process (Dawkins et al., 2014). According to the TPB approach, dominant social values affect the antecedents to intention. In the sense it is likely that a supportive group would provide social legitimisation for a person’s enterprise ownership and operational choices (Liñan and Chen, 2009: Thai and Turkina, 2013). This leads to the second hypothesis:

H2. Subjective norm positively influences the intention to operate an informal enterprise.

Perceived behavioural control
When the state has little presence and is unable to enforce its rules, informality tends to prevail (Loayza, 2008). Complicated regulations are considered a barrier to business growth preventing small businesses from crossing into formality (De Soto, 1989). These obstacles to economic informality, which include bureaucracy, corruption and weak legal environments (Friedman et al., 2000), are reported to be much more pronounced in Latin America (Schiffer and Weder, 2002). As PBC is influenced by access to resources (Ajzen, 1991), the difficulty of accessing credit or dealing with the Peruvian state (Bird, 2013) will present challenges for Peruvian entrepreneurs and thereby support an intention to operate their enterprise informally. The perception of bureaucratic difficulty is shown to be a factor when considering whether to obtain a Peruvian business license (Jaramillo, 2009). This leads to the third hypothesis:

H3. Perceived behavioural control positively influences the intention to operate an informal enterprise.

Some specific demographic variables have been found to influence EI. Here age, gender and individual education attainment are treated as study control variables. Age has been found to affect EI and moral standards, exerting a positive influence that is stronger among older
people (Kautonen et al., 2011; Rivis et al., 2009). A TPB study of pedestrians’ behaviour found the levels of rule adherence to be significantly different for the younger respondents than for adults (Moyano, 1997). Gender has been shown to be an element for EI; however, Haus et al. (2013) considered the differences in EI between men and women to be based more on acting on the intention. The gender of subjects can also have differences of significance in terms of attitude (Morton and Koufteros, 2008), and has been found to influence the selection of formal or informal employment in Nicaragua (Pisani and Pagan, 2004) and the rationale for undertaking informal entrepreneurship in Ghana (Adom and Williams, 2012). Finally, the education levels of individuals have been found to be a determinant of informality (Loayza, 2008), an influence on the propensity to formalise (Jaramillo, 2009) and an effect on formal employment participation rates in Nicaragua (Pisani and Pagan, 2004). Entrepreneurial education has been found to make a minor contribution to EI (Bae et al., 2014), whereas Martin et al. (2013) found entrepreneurial education to be beneficial for EI and performance but less so for actual entrepreneurial outcomes.

**Research method**

The study’s design required a survey to be developed specifically to gather TPB variable data from a sample of small informal gas cylinder sellers in Lima.

**Sample**

The population for this study is the small informal sellers of domestic use refillable LPG cylinders. In recognition of the public hazard of the quality and control of selling combustible fuels, the sale of hydrocarbons in Peru is regulated through a Hydrocarbon Register, which records authorised suppliers. These authorised suppliers may also refill domestic gas cylinders.

Domestic gas distribution in Lima consists of small and large gas bottles delivered to individuals and small businesses. The larger 45-kg bottles are more likely to be used in commercial premises such as restaurants, though there are some domestic users, whereas smaller 10kg bottles are commonly used in residential homes and apartments. The last-mile delivery occurs through two means. The first is through formal licensed filling and distribution businesses, which deliver using fleets of small trucks. The second and more prevalent is a network of stand-alone small informal sellers. These are supplied by a licensed filler and the bottles are then distributed to households. The small informal sellers typically use bicycles or low-powered motorcycles to carry and collect gas bottles on an on-call and on-demand basis. Spread throughout the residential areas of Lima, the time taken for delivery between phone call-order to receipt is about 10-30 min depending on the distances involved. This typical Peruvian informal business may involve multiples members of a family and may use part of their house for the business, for example bottle storage and office space, with the small informal seller taking a small margin from each cash-based delivery. It is therefore a well-defined group of informal entrepreneurs, which share similar work practices, operational procedures and are of a similar business size.

To quantify the level of informal sales, a survey was undertaken by the Peruvian regulation agency OSINERGMIN. Authorised suppliers provided information of the informal sales networks, which resulted in a temporary register of informal gas sellers that existed for a limited time between 2007 and 2008 while the Peruvian gas selling regulations were reviewed. The temporary register contained a total of 11,885 informal small domestic use LPG cylinder sales locations across the 43 districts of the province of Lima.

The study’s sample is taken from this temporary register of small informal sellers. The sample size was calculated assuming the number on the register – 11,885, with a sampling
error of 0.07 and confidence level, 95 per cent – providing a required sample of 193 respondents (Weiers, 2005). Nearly 300 small informal sellers were visited, from which 202 completed questionnaires were obtained across ten of provincial Lima’s local government districts. Table I provides details on each district’s populations and respondent numbers.

**Instrument development**

Previous studies on informal entrepreneurs and undesirable behaviour emphasise that survey conduct is important due to these types’ of studies being sensitive in nature (Ram et al., 2007). This has led to the questioning of informal entrepreneurs being described as challenging, with the respondents needing to be constantly reassured; with some still reluctant to provide detailed responses (Williams, 2013a). While a number of qualitative studies show that informal entrepreneurs may talk openly about their experiences, interview barriers such as stigmatisation or public exposure require trust building before and during data collection (Ram et al., 2007).

A number of TPB studies to understand the phenomena of undesirable behaviour gather data through self-reporting (Beck and Ajzen, 1991, Armitage and Conner, 1999; Burak and Vian, 2007). The main drawback of self-reporting is bias from the respondents providing erroneous data based on socially desirable responses or to deny holding socially undesirable attitudes (Beck and Ajzen, 1991). While it is possible to moderate some of these data inconsistencies through the use of objective measurement or by using documentation comparison (Hessing et al. 1988), it fails to supply truly rich data (Beck and Ajzen, 1991). Self-reporting has been verified as being sufficient by Burak and Vian (2007) who based their assumption that respondent self-reporting would not distort their results on the openness and lack of punishment for the undesirable behaviour that was the focus of their study. Beck and Ajzen (1991) found self-reports of undesirable attitudes to be relatively truthful and that overall their results provided considerable support for the TPB as a predictor of undesirable behaviour.

A new instrument was developed and its validity tested through a pilot sample of 30 individuals. The pilot participants, who had the same characteristics as study’s population, also provided comment on the appropriateness of the wording and their understanding of the questions (Godin and Kok, 1996; Francis et al., 2004). The study’s predictor constructs were elicited from the informal business owners and are based on the beliefs of the study’s population, providing a general framework for behavioural beliefs, norms and controls (Reyes and Martin, 2007). This and the business context – the temporary register made it

<table>
<thead>
<tr>
<th>Area</th>
<th>Respondents</th>
<th>Area Population</th>
<th>Districts</th>
<th>District population</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>76</td>
<td>1,018,503</td>
<td>Carabayllo</td>
<td>213,386</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Comas</td>
<td>486,977</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Los Olivos</td>
<td>318,140</td>
</tr>
<tr>
<td>East</td>
<td>77</td>
<td>1,074,612</td>
<td>San Juan de Lurigancho</td>
<td>898,443</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rimac</td>
<td>176,169</td>
</tr>
<tr>
<td>South Central</td>
<td>49</td>
<td>858,581</td>
<td>La Victoria</td>
<td>192,724</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Surquillo</td>
<td>89,283</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Surco</td>
<td>289,597</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Chorrillos</td>
<td>286,977</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>202</strong></td>
<td><strong>2,951,696</strong></td>
<td></td>
<td><strong>2,951,696</strong></td>
</tr>
</tbody>
</table>

**Source:** 2006 National Census data available from: http://censos.inei.gob.pe/cpv2007/tabulados/
possible to sell gas while not being a formally registered business in Peru – reduced exposure risk and supported valid responses.

Instrument administration
To prepare questions, Ajzen’s (2006) methodology was closely followed and augmented by the pilot study responses. The questionnaire was structured using simple, easy to comprehend language, containing at least three items or variables for each construct and able to be completed in a short time by the respondents (Francis et al., 2004). The questionnaire was composed in Spanish by native speakers, using common Peruvian phrases. Responses were obtained by interview and recorded using seven-point Likert scales. One interviewer per district of Lima was used to maintain data recording consistency and to elicit and maintain the confidence of the informal gas sellers.

Item measurement
Intention was operationalised in terms of the measurement of three items, which are based on questions on undesirable or illicit behaviour (Morton and Koufteros 2008) and were designed to measure the respondent’s intention to behave over time.

Attitude was operationalised in terms of a measurement of six items, which were based on the beliefs of the informal entrepreneur group which had been found in the pilot study. These took into account EI questionnaire constructions for attitude by having (Liñan and Chen, 2009), being directed at the respondent’s view of the advantages and disadvantages of being an informal entrepreneur.

The subjective norm was operationalised in terms of the measurement of four items directed to assess the approval and agreement of family, friends and other community members towards the respondent being an informal entrepreneur.

PBC was operationalised in terms of a measurement of six items, based on the causes or enablers of informality drawn from the literature (Loayza, 2006; De Soto, 1988; Schiffer and Weder, 2002; Friedman et al., 2000; Portes and Haller, 2004). The items based on belief of ability to choose, continue and to gather the necessary support and resources for initiating or continuing an informal enterprise were directed to whether the respondent has a perceived adequate level of control of their informal enterprise.

Control variables were measured using the data gathered of each respondent’s age, gender and education level.

The item measures and questions are contained in the Appendix.

The data were analysed using SPSS v18 and included factor analysis to validate the model’s constructs and structural equation modelling to ascertain multicollinearity.

Results and analysis
Exploratory factor analysis
An exploratory factor analysis was carried out on the data resulting from the survey. This analysis provides the identification and verification of whether the items are appropriately associated with the constructs. A total of 14 of the 19 items were grouped in the four variables or constructs, after the rotation of those items with loads less than 0.5 were eliminated and in turn they were grouped with other constructs. To test the association of the items, Varimax rotation was used for five iterations producing a Cronbach’s alpha for each construct. These vary between 0.615 and 0.748, which are within the indicators of internal consistency as acceptable to good (George and Mallery, 2003). Table II contains the results of the factor analysis with the respective Cronbach’s alpha values.
**Structural equation modelling**

Structural equation modelling (SEM) was used to construct and test the model carried out using AMOS version 18.0 (Arbuckle, 1997). SEM provides the benefit of simultaneously estimate path coefficients and tests the significance of causal paths and the model as a whole (Bagozzi and Yi, 1988). By comparing their correlations with the estimates of reliability, the SEM correlations are found to be lower indicating that the factors are different from each other. This provides essential requirement for the existence of discriminant validity (Churchill, 1995; Swartz and Douglas, 2009). Given the adequate validity and reliability of measurement, hypothesis testing of the data was then undertaken.

The structural models were developed using the following fit indices:

- the value of Chi-square between the degrees of freedom (CMIN/DF);
- the comparative fit index (CFI); and
- the root mean square error of approximation (RMSEA).

Following the recommendations from the literature, the results are indicative of an acceptable model fit, where the CMIN values/DF are near 1.00, the CFI values are greater than 0.90 and the RMSEA are equal or less than 0.08 (Blunch, 2010). Thus, the general model shows good fit indicators. Table III provides the fit indices data. Next, the initial model was supplemented with demographic variables to observe their implication. However, the structural equation analysis could not confirm the influence of location as the samples for these were very small for SEM validation testing.

<table>
<thead>
<tr>
<th>Adjustments</th>
<th>Model</th>
<th>Independent model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chi Square, df, (p-value)</td>
<td>122.48, 63, (0.000)</td>
<td>855.811, 91, (0.000)</td>
</tr>
<tr>
<td>CMIN / DF</td>
<td>1.944</td>
<td>9.405</td>
</tr>
<tr>
<td>GFI</td>
<td>0.922</td>
<td>0.000</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.069</td>
<td>0.204</td>
</tr>
</tbody>
</table>

Table III. Structural model adjustment indices

---

Table II. Results of the factor analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Intention</th>
<th>Attitude</th>
<th>Subjective norm</th>
<th>Perceived behavioural control</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.2.1 – Intention</td>
<td>0.854</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.2.2 – Intention</td>
<td>0.795</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.2.3 – Intention</td>
<td>0.683</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.3.2 – Attitude</td>
<td></td>
<td>0.691</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.3.3 – Attitude</td>
<td></td>
<td>0.688</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.3.5 – Attitude</td>
<td></td>
<td>0.687</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.3.4 – Attitude</td>
<td></td>
<td>0.672</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.3.1 – Attitude</td>
<td></td>
<td>0.505</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P.4.2 – Subjective norm</td>
<td></td>
<td></td>
<td>0.767</td>
<td></td>
</tr>
<tr>
<td>P.4.3 – Subjective norm</td>
<td></td>
<td></td>
<td>0.756</td>
<td></td>
</tr>
<tr>
<td>P.4.1 – Subjective norm</td>
<td></td>
<td></td>
<td>0.668</td>
<td></td>
</tr>
<tr>
<td>P.5.4 – Perceived behavioural control</td>
<td></td>
<td></td>
<td></td>
<td>0.807</td>
</tr>
<tr>
<td>P.5.3 – Perceived behavioural control</td>
<td></td>
<td></td>
<td></td>
<td>0.780</td>
</tr>
<tr>
<td>P.5.2 – Perceived behavioural control</td>
<td></td>
<td></td>
<td></td>
<td>0.531</td>
</tr>
<tr>
<td>Cronbach’s α</td>
<td></td>
<td></td>
<td></td>
<td>0.748</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.747</td>
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<td></td>
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<td></td>
<td>0.644</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.615</td>
</tr>
</tbody>
</table>

Notes: Method of extraction: principal component analysis; method of rotation: Varimax normalization; rotation converged on five iterations.
Hypothesis testing and analysis

The use of SEM is much more accurate than the multiple regression, as it includes the causation of each item and in turn the inclusion of error. Table IV presents the evidential basis for each significant element of the construct, whereas Figure 2 presents results the regression and the SEM data.

Table IV. SEM model's determinants

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Standard regression load</th>
<th>Sig.</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Personal attitude positively influences the intention to operate an informal enterprise</td>
<td>2.74</td>
<td>0.049</td>
</tr>
<tr>
<td>H2</td>
<td>Subjective norm positively influences the intention to operate an informal enterprise</td>
<td>3.063</td>
<td>0.051</td>
</tr>
<tr>
<td>H3</td>
<td>Perceived Behavioral Control positively influences the intention to operate an informal enterprise</td>
<td>0.354</td>
<td>0.488</td>
</tr>
</tbody>
</table>

Notes: Numbers above each construct arrow indicate the standard coefficient; numbers below each construct arrow indicate the variance explained; numbers in bold are the standard regression load from Appendix.
Table IV and Figure 2 show that $H1$ for attitude is supported. The most significant item variables, $p_{3.4}$, $p_{3.5}$ and $p_{3.1}$, (see Appendix for the full list of items) are beliefs that form the basis of attitude (Krueger et al., 2000). Here, it is evident that individuals who are predisposed to be informal entrepreneurs find benefit and advantage from this status. The most significant variable, $p_{3.4}$ “For you, being informal is (beneficial/detrimental)?” signifies a favourable attitude to informality compared to other possible states. This is somewhat at odds with Jaramillo’s (2009) finding that nearly two-thirds of informal firms see no advantage to their informal status, though does support that study’s overall finding that when given an opportunity to formalise most informal Peruvian firms prefer not to and remain informal.

$H2$, the subjective norm is also supported. This corresponds with the socio-cultural context of Peru, where normative social support becomes part of an individual’s decision-making due to the central place of group norms (Dawkins et al., 2014). It is evident that when individuals feel supported by people around them, in particular their families as demonstrated by the significance of item $p_{4.1}$, individuals will intend to maintain their informal business status. The strength of the social norm is also manifested in the supportive informal social institutions that Webb et al. (2013) identify as being slow to change.

$H3$ is not supported by the SEM results. This reflects Bird’s (2013) findings that while considerable policy and regulatory reform had been initiated to improve business compliance and in particular to reduce barriers to credit, Peruvian informal entrepreneurs were ambivalent to this policy’s deployment, due to their attitude to debt or to what they perceived to be additional costs. Jaramillo’s (2009) experimental results also support this, with few of the encouraged businesses receiving a business license. However, this variable’s finding of non-significance is also important for emphasising that socio-cultural factors are an important dynamic for informal entrepreneurship’s continuation, even when regulatory remedies and formalisation facilitations are available. This aspect seems to be understood by the informal entrepreneurs and is reflected in the most significant PBC construct item $p_{5.3}$ “Competition with other informal businesses discourages you to formalise (true/false)?” indicating that an entrepreneur’s behaviour is influenced by the formalisation rates of their competition.

Finally, for the variable of intention, the significant items are $p_{2.1}$ and $p_{2.2}$, which indicate an intention to remain informal, if not in perpetuity. As such it implies that the informal entrepreneur feels little remorse, shame or fear of being caught for operating an informal enterprise and they do not have much intention to formalise their business venture in the future.

Taken as a whole these results provide indications that social interactions such as those between family and neighbours and the general community’s norms have a significant effect on the entrepreneur’s informality. This supports Ram et al.’s (2007) finding that social norms that support economic informality do so by allowing for collusion between the entrepreneur and other social actors, which in turn supports the continuation of informal arrangements and embeds them into the fabric of the community and economy. As such the results have implications for the causal entrepreneurship debate (Chen, 2012), in that we have identified influencers of informal EI, which are reflective of the power that these informal institutions have on an individual’s decision making.

**Discussion**

This study set out to determine the factors that contribute to the intentions of an individual to operate an informal venture in Peru selling domestic gas cylinders. Through the use of a
sample taken from the population of small informal gas sellers the TPB was used to determine which of its constructs contributed to the intention to operate an informal venture.

Attitude is found to be the most significant implying that there is an acceptance of the risk and state of uncertainty that being an informal entrepreneur brings. The subjective norm was found to be the other significant factor. In Lima it is common to operate a business from your home with the support from family and close social networks. This is further supported by the status one would accrue from it and their family by being recognised as economically independent. PBC, which reflects the informal entrepreneurs’ perceived low level of control over their economic independence was not found to be a significant factor, although the ubiquitous nature of informality in Peru was found to be a significant disincentive to formalise and as such indicates a significant issue for formalisation policies in general.

Informal EI and subsequent behaviour are also supported by model. The analysis found that the informal entrepreneurs were disposed to start and continue operating informally, having an attitude supporting this decision, while being reinforced by the social support received from close family and networks. These findings reinforce Sutter et al.’s (2017) observations that the economic frame is but one perspective of the informal economy, as an individual’s social context of traditional norms, values and understandings have as much, or possibly more, influence on entrepreneurial decisions.

The unveiling of these individual-level determinants provides further insight for policymakers developing strategies aimed at reducing economic informality. Bird’s (2013) description of Peruvian informal entrepreneurs provides an understanding of the local social drivers of informality and here we provide additional quantitative evidence of the power of social institutions and the independent nature of the Peruvian entrepreneur in the face of formal institutions. Even though Peruvian business registration has been made easier, the continuation of the state’s weak presence and a social climate that is tolerant if not supportive of informal entrepreneurship aids to normalise this behaviour. This supports Jaramillo’s (2009) finding that many informal entrepreneurs do not formalise, even when costs are removed as a barrier.

Peruvian informal entrepreneurs neither see the need to formalise nor do they feel any social sanction, in fact it appears to be the opposite. While Jaramillo found that a perceived benefit of formalisation was not paying fines or bribes, the significant differences between the formal and informal business in that study were the levels of the owner’s education attainment and a desire for business visibility. Here we find that to make any impact on informality rates, it will not be changes within the regulatory or formal institutional that are being enacted aiming to improve formality rates, but also changes within social or informal institutions of Peru, such as in the further development of trust in the state or improved attitudes towards taxation morality that will be required for the social environment to catch-up with the enacted regulatory and institutional changes. It would seem consideration for a pacing of change and better targeted policies would be required to be developed in the face of the strong influences of Peru’s social institutions with respect to the pervasive nature of informal entrepreneurship. On reflection we can see that from developing an understanding of the perspectives and influencers of informal entrepreneurs we are able to mould solutions that may be more appropriate (Sutter et al., 2017). This is helpful as more mainstream formalisation policies could face transfer difficulties (Smallbone et al., 2014) into Peru’s institutional environment in part due to the contextual and social influences uncovered here.

In concert, these points provide a contribution to the causal entrepreneurship debate. As we have discussed, the results indicate the significant influences of social norms or informal institutions on an informal entrepreneur’s intentions and choices. We have found many
entrepreneurs reveal their intentions to remain informal, some for perpetuity. These results lend to support the rational exit theory of informality (Chen, 2012), where entrepreneurs are choosing to remain informal despite its disliked or negative aspects (Jaramillo, 2009). Following the studies of Sutter et al. (2017) and Muralidharan and Pathak (2017), these observations add further support to the suggestion that informal institutions are a significant influence on the informal status of entrepreneurs and perhaps, more importantly, the results indicate the effects informal institutions have on an entrepreneur’s formalisation motivations and intentions.

**Practical implications**

Our results confirm the direction of a regulatory policy related to the sale of domestic gas cylinders in Peru, through Article 13 of Regulation National 022-2012-EM. The development of this regulation acknowledged the reluctance for formalisation and, therefore as suggested by Nelson and De Bruijn (2005), the regulatory framework provides a pragmatic response to pervasive informality in local gas sales and delivery. Under the article of regulation, the authorised suppliers, which fill and distribute LPG cylinders to small informal sellers, are responsible for these who distributed to households. Every small informal seller is certified by one of the authorised suppliers, who responsible for the safety and quality of the cylinders being sold by small informal sellers. Article 13’s provisions maintain a chain of responsibility required for the safety of gas cylinders, while recognising the difficulty of a transition to a formally regulated energy distribution system. This pragmatic approach relieves the problem of formal registration in a social and business climate of informality and is in line with Sutter et al.’s (2017) observation that the inclusion of an understanding of the informal entrepreneur’s context and values enables more successful engagement. As we show, there is significant social support for informality and the imposition of regulations that would not improve supply systems are likely to be viewed unfavourably by gas users and sellers alike. We reveal that by understanding the behavioural antecedents of intention, policies can be devised that account for the prevailing environment while maintain safety and control. Part of further policy development in this area could be to influence formality rates through access to adult education opportunities within the sector, relying on Jaramillo’s (2009) finding of education level of the owner to be a predictor of formalisation.

**Implications for future research**

The study provides a methodological contribution through the development of an instrument designed for informal entrepreneurship. The instrument’s factor analysis provided good results, reaching 60 per cent of variance explained in the model across the four constructs, with the Cronbach’s $\alpha$ within those obtained in studies of behaviour in psychology (Kline, 1999). The instrument could therefore be used with other populations of informal entrepreneurs to consolidate the findings of this study or be refined further through increased specificity at different levels rather than for aggregate behaviour (Kautonen, et al., 2013).

As changes to informal institutions and social attitudes are integral to addressing a high rate of informal entrepreneurship, improved individual level data on taxation morality (Schneider and Williams, 2013) could be studied by adding the construct of moral obligation (Burak and Vian, 2007). It is these types of social attitudinal changes that will offset the strong support from Peru’s social institutions that have such a powerful effect on the formation of an individual’s attitudes, as it is harder for them to distance themselves from the various groups to which they belong (Hofstede, 2001).
The SEM correlations indicated a significant relationship between two of the study controls, age and education. Jaramillo (2009) also indicated that education is a factor, and further research could be conducted to clarify the role of age and educational attainment influences on the starting and continuation of a venture’s level of formality.

Finally, it is possible that this segment of Lima’s informal economy is not fully representative of wider informal entrepreneurship in Peru. Therefore, this study could be replicated across other informal business contexts such as the sellers of pirated goods, informal public transport or taxi operators and small informal general commercial operations to gain more robust evidence of the behavioural determinants of people who operate in Lima’s informal economy, thereby providing data to construct more appropriate sectorial regulation and formalisation policies.

References


**Further reading**


**Appendix. Item measurement scale**

Variable (all measured on a seven-point Likert-style rating scale)

1. **Intention**
   - You have the intention to be informal permanently? (more likely/less likely)?
   - You are expecting to be informal for a long time? (agree/disagree)?
   - You will make every effort to remain informal? (more likely/less likely)

2. **Attitude**
   - Being informal is more advantageous (agree/disagree)?
   - If you had the opportunity and resources you would remain informal (very likely/less likely)?
   - If your business closed, would you continue to be informal (very likely/less likely)?
   - For you, being informal is (beneficial/detrimental)?
For you, being informal is (good/bad)?

For you, being informal has (value/no value)

(3) Subjective norm
- Your family that live with you, think that it is (useful/not useful) to be informal?
- Your family that do not live with you, they (agree/disagree) of you being informal?
- Your close friends, they agree with you being informal (true/false)?
- Many people like you are informal (very likely/less likely)?

(4) Perceived behavioural control
- It is up to you whether you will be informal or not (agree/disagree)?
- Your business methods prevent you from formalizing (agree/disagree)?
- Competition with other informal businesses discourages you to formalize (true/false)?
- You are informal due to your limited resources (true/false)?
- Your neighbours will support your informal business (very likely/less likely)?
- If you wanted to, you could always be informal (very likely/less likely)?

[*Translated from the original Spanish language questionnaire*]

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Role of innovations in provision of competitiveness and innovational development of economy and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe

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Abstract
Purpose – The purpose of this paper is to determine the role of innovations in provision of competitiveness and innovational development of economy and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe with the help of a special proprietary methodology.

Design/methodology/approach – The authors substantiate the concept and methodology of calculation of “underdevelopment whirlpools”, perform the analysis of development of “underdevelopment whirlpools” in Russia and countries of Eastern Europe and evaluate the influence of “underdevelopment whirlpools” on competitiveness of these countries’ economy.

Findings – The authors determine the perspectives of overcoming the “underdevelopment whirlpools” in Russia and countries of Eastern Europe and increasing their competitiveness with the help of innovation and develops practical recommendations for creation of innovational economy for the purpose of provision of high competitiveness and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe and overcoming of strong and growing differentiation of the level of socio-economic development of their sub-systems.

Practical implications – Creation of innovational economy in Russia and countries of Eastern Europe is hindered by multiple obstacles (socio-economic and institutional), the success of overcoming of which determines the realization of a certain scenario of development of events.

Originality/value – The main conclusion is that creation of innovational economy can and should become a new vector of economic growth in Russia and countries of Eastern Europe and overcoming of strong and growing differentiation of the level of socio-economic development of their sub-systems.

Keywords Competitiveness, Countries of Eastern Europe, Innovational economy, Underdevelopment whirlpools

Paper type Research paper

1. Introduction
Russia and countries of Eastern Europe are characterized by similar economic problems. Despite the fact that the Russian economic system is built by the principle of federative structure, and the European is built by the principle of integration of independent states,
both of them are multi-dimensional and poly-structural dynamic systems. Analyzing them from the point of view of the theory of synergism, it is possible to see strong variation in the level of socio-economic development of their elements (sub-systems), which in the context of the Russian economy are regions, and in the context of the European economy, countries.

This leads to a serious scientific and practical problem, related to reduction of the level and rate of development of the general socio-economic system because of the presence and gradual deepening of its structural disproportions. Despite the active attempts of scientists and practitioners, effective solution of this problem has not yet been found.

This article offers a hypothesis that a perspective means of solving this problem is innovations. Creation of innovational economy can and should become a new vector of economic growth in Russia and countries of Eastern Europe and overcoming of strong and deepening differentiation of the level of socio-economic development of their sub-systems. A logical substantiation of the offered hypothesis is generally acknowledged provisions of the theory of economic growth, theory of economic cycles and theory of innovations – these theories acknowledge the key role of innovations in acceleration of the rate of economic growth and overcoming the economic crises. As differentiation of the level of socio-economic development of regions in the common economic system is actually brought down to crises of certain regions and intensive growth of others, innovations can have anti-crisis role, leveling and balancing the level and rate of development of all regions.

This predetermines the goal of the research, which consists in determining the role of innovations in provision of competitiveness and innovational development of economy and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe. The work is to solve the following tasks:

- substantiating the concept and methodology of calculation of “underdevelopment whirlpools”;
- applying this methodology for determining the presence and analyzing dynamics of development of “underdevelopment whirlpools” in Russia and countries of Eastern Europe;
- evaluating influence of “underdevelopment whirlpools” on competitiveness of economy of Russia and countries of Eastern Europe;
- determining perspectives of overcoming “underdevelopment whirlpools” in Russia and countries of Eastern Europe and increasing their competitiveness with the help of innovations; and
- developing practical recommendations for creation of innovational economy for the purpose of provision of high competitiveness and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe.

2. Conceptual framework and literature overview

The information and analytical basis of the research consists of statistical and information and analytical accounting of the International Monetary Fund, the World Economic Forum and the Federal State Statistics Service. The author views the fundamental studies on the issues of provision of region’s competitiveness and the applied studies in the sphere of creation of innovational economy with emphasis on developing countries.

The performed literature overview showed that there are a lot of theories and concepts of regional development, which are devoted to studying and solving the problems of regional differences.
Thus, Anukoonwattaka (2016) substantiates the importance of considering the region's position in the global chain of added value for determining its competitiveness and comparing it with other regions. Barney et al. (2017) and Bilbao-Osorio and Rodriguez-Pose (2004) substantiate the importance of organizational and managerial factors during evaluation of competitiveness and innovational activity of economy by the example of countries with transitional economy and countries of Europe.

The key influence of the level of competition on innovational activity of regional entrepreneurial structures is substantiated in many studies (Crowley and Jordan, 2017; Freeman, 2002; Gagarin and Chainikova, 2016; Gries et al., 2017; and Guliak, 2017). In their turn, scholars such as Malyshekov and Ragulina (2014); Otoiu et al. (2017); Saltykov et al. (2015); Segerstrom (1991) and Skiter et al. (2015) offer their models of economic growth on the basis of innovational activity of regional economic systems.

Thus, despite the diversity of existing scientific theories and concepts of regional economic development and regional disproportions, a serious gap in the system of modern scientific knowledge in this sphere is absence of precise methodology of studying the differentiation of the level of socio-economic development of regions in dynamics, as the existing studies and publications allow studying only the statistical picture of this differentiation. This gap can be filled with the methodology of “underdevelopment whirlpools”.

The issue that is studied in this work is formulated, actualized and studied in a lot of modern fundamental and applied works. In particular, reduction of the level and rate of development of modern socio-economic systems because of presence and gradual deepening of their structural disproportions is noted in the following publications of well-known scholars:

- differences in the level of investment attractiveness and investment provision, which leads to reduction of the level and rate of socio-economic development of regions of modern India, starting from 1991 (that is, in the age of liberalization of market economy) and increase of structural disproportions in the Indian economy are studied in the work (Bhandari et al., 2015);
- technological asymmetries (differences in the level of technological development), which lead to regional economic imbalance in modern Spain and increase its internal disproportions, are studied in (Gómez, 2013); and
- Socio-economic and ecological differences in development of industry of the Urals and Siberian Federal Districts of the Russian Federation, which lead to disproportions in their development, are discussed in (Eydenzon et al., 2013).

Based on the above scientific studies, innovations are here defined as completely new (unprecedented, not previously existing) technologies of organization of business processes, marketing and production, as well as products (goods and services). That is, in the offered definition, the copying of innovations from other companies (innovations are new for the given company but are applied by its rivals) and countries (innovations are new for the given economy but are known and popular in the whole world) are not taken into account, as they ensure modernization (overtaking development), not innovational development of economic systems which leads to growth of their competitiveness. In our opinion, the most important and inseparable characteristics of innovations are novelty and uniqueness.

Methodological basis of the research is comprised of the proprietary methodology of E.G. Popkova for calculation of “underdevelopment whirlpools”. Studying the process of change of qualitative and quantitative characteristics of these sub-systems in dynamics allows
determining sustainable regularity related to increase of underrun of certain systems from
the others. The actively developing systems preserve the status and the role of leaders that
possess corresponding privileges and related additional capabilities. Slowly developing sub-
systems preserve the underdeveloped status and the role of periphery that possesses lesser
capabilities for further growth and development.

In the existing scientific economic literature, large attention is paid to the issues of
regional economic development, innovational eco-systems and regional differences. Thus,
the mechanism of trans-regional competition and imbalance of territorial economic
development are studied by Cao et al. (2018). Spatial analysis of inhomogeneity of regional
economic development and factors of its formation and deepening by the example of modern
China is performed in Cao and Xu’s (2018) study. The issues of formation of innovational
eco-systems and systemic management of innovational potential of modern economic
systems are studied in the publication of Kostyshak et al., (2018).

Foundations of sustainable economic growth and innovational development of modern
economic systems with emphasis on the educational factor are studied in the work of
Tvaronaviciené et al. (2018). Regional differences in 22 countries of the world as to the level
of their socio-economic and demographic development are noted in the work of Lynn et al.
(2018). The topic of provision of socio-economic security in the aspect of presence and
overcoming of regional differences and disproportions in development of the modern
regional economy is studied in Ohotina et al. (2018).

Based on the concept of regional economic development, innovational eco-system and
regional inequality, which are studied in detail in multiple works of the modern authors
(Wong et al., 2005; Youtie and Shapira, 2008; Freeman, 2002; Segerstrom, 1991; Bilbao-
Osorio and Rodríguez-Pose, 2004), for explaining the theoretical essence of this phenomenon
and its practical study, the work offers to use the concept and methodology of calculation of
“underdevelopment whirlpools”. Such whirlpools describe the process of socio-economic
sub-systems losing the sources and perspectives of growth and development and larger
aggravation of their position in the general system as compared to other sub-systems.
Calculation of “underdevelopment whirlpools” is performed in the following way.

In connection to certain period (in statics), the depth of “underdevelopment whirlpool” is
calculated according to the following formula:

\[
\text{Du}_t = Y_t - Ye 
\]

(1)

Where:
\(\text{Du}_t\) = depth of “underdevelopment whirlpool” in year \(t\), years;
\(Y_t\) = year \(t\);
\(Ye\) = year in which the model country had the same level of GDP per capita (or GRP
per capita).

Then, comparing the depth of the “whirlpool” in the current and previous year (in
dynamics), the speed of economy’s sucking into “underdevelopment whirlpool” is
determined according to the following formula:

\[
\text{Su}_t = \text{Du}_t - \text{Du}_{t-1}
\]

(2)

Where \(\text{Su}_t\) – speed of economy’s sucking into “underdevelopment whirlpool” in year \(t\),
years for 1 year.

The methodology of calculation of “underdevelopment whirlpools” is described in detail
with examples of its practical application in the publications of Popkova et al. (2013, 2014).
3. Methodology and empirical strategy of research
In Russia, the object of the research is Volgograd Oblast, with Moscow Oblast being a model. In countries of Eastern Europe, the object of the research is the Republic of Belarus, with the Czech Republic being a model.

In Russia, analysis is performed within the country (Volgograd region is compared to Moscow region), and in Eastern Europe inter-country, analysis is performed because of two main reasons: first, absence of statistical data within the country, and second, necessity for providing representativeness of data, as countries of Eastern Europe could be compared to Russia according to geography and the level of socio-economic development only in the scale of a regional integration association. That is why the Republic of Belarus is compared to a more dynamically developing representative of the region of Eastern Europe – the Czech Republic.

Volgograd Oblast was selected as an example of modern Russia’s region because of the fact that it can be presented as a standard, average Russian region – the Oblast is neither a donor nor recipient. The Republic of Belarus was selected as an example of countries of Eastern Europe because of its close connection to modern Russia and similar indicators of socio-economic development.

We selected these research objects as, first, position and role of Volgograd Oblast in the Russian Federation in terms of geography is comparable to the role and position of the Republic of Belarus in Eastern Europe, and second, as a result of preliminary research, it is seen that they face common (similar) problems and are peculiar for presence of “underdevelopment whirlpools”.

The empirical strategy of this research consists in following this algorithm:
- determining the parameters of “underdevelopment whirlpools” in selected objects for the research – Volgograd Oblast (as compared to Moscow Oblast) and Republic of Belarus (as compared to countries of Eastern Europe) – with application of the proprietary methodology of calculation of “underdevelopment whirlpools”;
- determining the connection and influence of innovative activity in Russia and countries of Eastern Europe (by the example of selected objects for the research) as to the depth of their “underdevelopment whirlpools” and as to their global competitiveness with application of regression and correlation analysis; and
- developing practical recommendations for overcoming “underdevelopment whirlpools” and increasing competitiveness of Russia and countries of Eastern Europe with the help of innovations.

4. Results
Let us study economic development of Russia and countries of Eastern Europe with the help of methodology of “underdevelopment whirlpools”. Timeframe covers years from 2000 to 2017 (Table I).

To explain the calculations provided in Table I, let us study them by an example. Thus, according to the official statistics provided by the Federal State Statistics Service, GRP per capita in 2016 in Volgograd Oblast constituted RUB 294,682.2. In Moscow Oblast, the similar level of GRP was observed in 2011. Therefore, the depth of “underdevelopment whirlpools” in Volgograd Oblast in 2016 is calculated in the following way: Duw2016 = 2016-2011 = 5 years.

In 2017, the level of GRP per capita in Volgograd Oblast constituted RUB 318,946.5, which equaled the level of 2012 in Moscow Oblast. Therefore, the depth of
underdevelopment whirlpool in Volgograd Oblast in 2017 is calculated in the following way: $\text{Duw}_{2017} = 2017 - 2012 = 5$ years. The speed of Volgograd’s Oblast sucking into the “underdevelopment whirlpool” in 2017 is calculated in the following way: $\text{Suw}_{2017} = 5 - 5 = 0$ years for 1 year, that is the speed is zero.

As is seen from Table I, the depth of “underdevelopment whirlpool” in the Republic of Belarus (22 years) is larger than “whirlpools” of Volgograd Oblast (5 years). Despite the high speed of sucking of these economies into the “whirlpool” in 2015, up to this time (2017), they brought it down to zero. For evaluation of the influence of “underdevelopment whirlpools” on competitiveness of economy of Russia and countries of Eastern Europe, we performed regression and correlation analysis of the depth of “underdevelopment whirlpools” and the values of indices of their competitiveness.

To determine the role of innovations in provision of competitiveness and innovational development of economy and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe by the examples of the selected objects, let us conduct regression analysis. Competitiveness of Volgograd Oblast is determined on the basis of the corresponding index of competitiveness of Russia’s regions according to AV Group and innovational activity – on the basis of the ranking of the subjects of the Russian Federation (RF) according to the Russian regional innovational index by the National Research Institute “Higher School of Economics of the RF”.

Competitiveness of the Republic of Belarus is determined on the basis of analytical materials of the research organization Ekonomika.by similarly to the Global competitiveness index (the World Economic Forum) and innovational activity – on the basis of the Global innovations index according to the INSEAD, WIPO, Cornell University. The data for 2000-2017 are given in Table II.

For provision of transparency of the given data and simplicity of reproduction of authors’ calculations, let us view the process of their execution. In 2017, GDP per capita in

<table>
<thead>
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<th>Year</th>
<th>GRP per capita, RUB</th>
<th>Year</th>
<th>Duw</th>
<th>Suw</th>
<th>GDP per capita, USD</th>
<th>Year</th>
<th>Duw</th>
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Source: Compiled by the authors on the basis of Federal State Statistics Service (2016) and International Monetary Fund (2017)
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Source: Compiled by the authors on the basis of AV Group (2018), INSEAD, WIPO, Cornell University (2018), Ekonomika.by (2018) and National Research Institute “Higher School of Economics of the RF” (2018)
Volgograd Oblast of the Russian Federation constituted RUB 318,947. The similar level of GDP per capita in Moscow Oblast of the RF was observed in 2012 (i.e. Ye = 2012). Therefore, depth of “underdevelopment whirlpool” of Volgograd Oblast from Moscow Oblast in 2017 is calculated in the following way: \( D_{uw} = 2017 - 2012 = 5 \) years.

Let us check the materials of AV Group (2018), where we find the value of the index of competitiveness of Volgograd Oblast in 2017. After that, from the materials of the National Research Institute “Higher School of Economics of the RF” (2018) we take the value of the index of innovational activity of Volgograd Oblast in 2017. Let us put the data in Table II.

Based on the data from Table II, regression analysis was performed, which reflects the influence of “underdevelopment whirlpools” on competitiveness (Figure 1), innovational activity on competitiveness (Figure 2) and innovational activity on the depth of “underdevelopment whirlpools” (Figure 3).

**Figure 1.** Regression curve that reflects the influence of depth of “underdevelopment whirlpools” (x) on competitiveness (y)

**Figure 2.** Regression curve that reflects the influence of innovational activity (x) on competitiveness (y)

**Figure 3.** Regression curve that reflects the influence of innovational activity (x) on depth of “underdevelopment whirlpools” (y)
4.1 Competitiveness competitiveness

The determined regression and correlation dependencies are described in detail in Table III.

As is seen from Figures 1-3, all three regression dependencies are rather strong and are seen in the RF and the Republic of Belarus. Thus, increase of the depth of “underdevelopment whirlpool” by 1 year leads to reduction of competitiveness in Volgograd Oblast by 3.43 points (correlation 93.61 per cent), and in Republic of Belarus, by 0.17 points (correlation 98.42 per cent). Increase of innovational activity by 1 point leads to growth of competitiveness of Volgograd Oblast by 6.48 points (correlation 99.50 per cent), and Republic of Belarus, by 0.16 points (correlation 89.19 per cent). Increase of innovational activity by 1 point leads to reduction of the depth of “underdevelopment whirlpool” in Volgograd Oblast by 22.15 years (22 years) (correlation 91.83 per cent), and in Republic of Belarus by 0.50 years (correlation 86.74 per cent).

The perspectives of overcoming the “underdevelopment whirlpools” in Russia and countries of Eastern Europe and increase of their competitiveness with the help of innovations are seen in the context of three basic scenarios. The realistic (most probable) scenario supposes increase of the level of innovational activity that allows supporting high global competitiveness, but it is insufficient for creation of innovational economy. A precondition for its realization is the global tendency for development of innovations and the program of modernization of socio-economic systems conducted in Russia and countries of Eastern Europe.

Despite the vivid efficiency of measures for state stimulation of innovative activity of economic subjects, this scenario does not allow forming innovational economy because of institutional problems – such as instability of normative and legal provision of innovational activity and low investment attractiveness of economy. However, certain leveling of structural disproportions of socio-economic development of economic systems is ensured.

The pessimistic scenario is related to preserving the current level of innovative activity. The government measures for development of innovational economy are ineffective within this scenario because of strong opposition to innovations from society and entrepreneurship, and weak effectiveness of the market mechanism hinders creation of natural market stimuli for innovational activity of business. As a result, the level of differentiation of the regions of Russia and countries of Eastern Europe stays at the same level at best, but probably will worsen.

The optimistic scenario is based on successful development of innovational economy. Because of high interest of entrepreneurship, social support and high effectiveness of the measures of state regulation of innovative activity of business, intensive development of high-tech spheres and growth of employment in these spheres are achieved, as well as mass production of innovational products and their export. As a result, the global competitiveness of economy of Russia and countries of Eastern Europe grows, sustainability and balance of

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their development are achieved and structural disproportions of their economic systems are overcome.

For realization of the optimistic scenario, we developed the following practical recommendations for creation of innovational economy for the purpose of provision of high competitiveness and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe:

- Provision of favorable institutional conditions for creation of innovational economy. This requires creation of stable and transparent normative and legal provision in the sphere of innovations and simplification of the registration procedure, as well as increase of protection of rights for intellectual property objects.
- Conduct of social and cultural policy, aimed at leveling (if possible, overcoming) the opposition to innovations from society and business. This requires propaganda of innovations and increase of loyalty to them from business and society with the help of the specialized marketing tools – social advertising and PR.
- Strengthening natural market stimuli for increase of innovative activity of entrepreneurship. It is necessary to support balance between high level of competition and its certain limitation with the help of anti-monopoly policy for provision of economic subjects’ capability to manifest innovational activity.

The offered recommendations became the basis for the created model of development of innovational economy for the purpose of provision of high competitiveness and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe (Figure 4).

As is seen from Figure 4, innovational passivity is a cause for growing underrun of certain regions (or countries) from others, which leads to formation and deepening of “underdevelopment whirlpools”. Realization of the offered recommendations aimed at stimulation of innovational activity, and creation of conditions for its manifestation allows these regions to go into the group of innovations-active economic subjects, thus overcoming “underdevelopment whirlpools” and providing the growth of its competitiveness in the long-term. Innovations are a source of competitive advantages of economic systems, allowing them to increase and support their global competitiveness at the high level, thus overcoming the “underdevelopment whirlpools”. As a result, innovational economy in Russia and countries of Eastern Europe is created.
5. Conclusions
The results of the performed research confirmed the offered hypothesis and provided proofs that innovations are a perspective means for eliminating structural disproportions in economy of Russia and countries of Eastern Europe, i.e. overcoming of “underdevelopment whirlpools”. That is, innovations have a key role in provision of competitiveness and innovational development of economy and overcoming of “underdevelopment whirlpools” in Russia and countries of Eastern Europe. However, creation of innovational economy in these counties is hindered by multiple obstacles (socio-economic and institutional), the success of overcoming of which determines the realization of a certain scenario of development of events.

It is necessary to emphasize that innovative activity is a complex process from the point of view of management. This is caused by specificity of innovations. They could be divided into two categories – true innovations, with high level of novelty, which are in high demand in the market and lead to growth of competitiveness of economic subject and economy, and false innovations, which lead to insignificant improvements (or copied from other countries) and are in low demand and do not provide growth of competitiveness.

Therefore, in the process of development and realization of innovational policy, the emphasis should be made on stimulation of creation and implementation of true innovations, while false innovations, which require a lot of resources but do not lead to positive results, should be rejected. That is why such policy should be flexible and accompanied by continuous quantitative and qualitative monitoring and evaluation of innovative activity of economic subjects. Development of theoretical and methodological and practical recommendations for its conduct is a perspective direction for further scientific research in this sphere.

The performed research contributes into development of the modern theory of regional economy and disproportions in development of regions in economic systems. In view of the dynamics aspect of development of these disproportions with the help of the authors’ methodology of calculating “underdevelopment whirlpools” and the performed regression and correlation analysis, this research allows substantiating the influence of innovational activity on region’s competitiveness and overcoming its “underdevelopment whirlpool” in the future.

References


**Further reading**


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Analysis of the impacts of entrepreneurship training on growth performance of firms
Quasi-experimental evidence from Nigeria

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College of Business and Social Sciences, Covenant University, Ota, Nigeria, and
Emmanuel Orkoh
North-West University, Potchefstroom, South Africa

Abstract
Purpose – Using quasi-experimental designs, the purpose of this paper is to study the effects of training entrepreneurs and such entrepreneurs going ahead to retrain its workers on the business high-growth performance.

Design/methodology/approach – This paper used a unique evaluation data from the National Business Plan Competition in Nigeria, organized by the Nigerian government in collaboration with the World Bank. The data was analyzed using the Propensity Score Matching technique and complemented with the Difference-in-Difference estimates.

Findings – The authors find from the estimation of this paper that those entrepreneurs who received standard evaluation training and goes ahead to retrain its workers experienced an expansion in the number of employees by two persons, an increase in innovation index by about 3 units. An increase in revenue is also observed, but this increase was not significant at the 1, 5 or 10 per cent levels.

Originality/value – This paper presents an interesting viewpoint on how training within an entrepreneurial venture should be viewed as a ‘two sided coin’. This is such that training the entrepreneur is one side of the story, and the entrepreneur retraining its workers is another important side of the story.

Keywords Innovation, Nigeria, Entrepreneurship education, Human capital development, High-growth outcomes

Paper type Research paper

1. Introduction
Small businesses are vital in many developing economies for job creation, value chain addition and industrial growth. They can equally be strong sources of technological innovation for development (Coad and Tamvada, 2008; Michelitsch et al., 2011). Also, the traditional Industrial Organization literature suggests that new entrepreneurial ventures enhance market contestability, which is an important source of competition to spur growth within the economy (Tetteh and Essegbey, 2014). Despite the relevance of small businesses

The authors are grateful to the World Bank and David McKenzie for making their data available. The authors are also grateful to the participants at the 2017 Conference of the Economic Society of South Africa, where the first draft of the paper was presented. The authors appreciate all comments from the participants. Finally, the authors acknowledge the comments of the reviewers, which were helpful in improving the final version of this paper. As usual, all other errors and opinions are those of the authors.
to economic and industrial growth, they face a number of challenges that affect their operational capacity and growth. Among such constraints are lack of technical knowledge, innovation, poor access to capital and market access. Some of these challenges translate into common characteristics that usually define their sizes and growth. For instance, the majority of these small businesses never expand beyond only the owner and a few employees (Nichter and Goldmark, 2009; McKenzie and Woodruff, 2015), with a possible size of 10 workers (Hsieh and Olken, 2014; McKenzie, 2017).

Noting the enormous contributions of small businesses to developing countries and the challenges that confront them, an important question, therefore, is whether policies that are directed at improving the capacity of both the owners (i.e. entrepreneurs) and employees of the small businesses will significantly help to overcome these constraints (at least to an extent) and result in high-growth outcomes. This inquiry is relevant considering that entrepreneurs in developing countries are seriously lagging behind in innovativeness and the extent of reforms that they bring into their business processes (Santarelli and Vivarelli, 2007). Most new small businesses in developing countries are founded as a last resort (Beck et al., 2005) and may not be based on a firm conviction that is tied to the expertise and know-how of the entrepreneurs in the particular sector of interest. For example, there are instances in developing countries where entrepreneurs with low competency engage in multiple businesses (in different sectors) to increase their income flow. As a result, only a few of newly established small businesses in developing countries succeed and are able to weather the harsh business environment that confronts their operations. About a third of newly formed businesses survive beyond two years, and about 90 per cent of those surviving will not grow at all or will be left with the same number of employees as when they started (Olafsen and Cook, 2016). In Nigeria, the statistics is not much different; the available evidence suggest that about 65 per cent of small businesses fail within three years of existence because of lack of technical experience and knowledge, among others (Central Bank of Nigeria-CBN, 2003; Obi, 2013). Therefore, providing empirical evidence on some of the factors that can help to improve the human capacity of both the owners of small businesses and their employees to achieve long-term efficiency and expansion will be relevant for industrial growth policy formulation.

This paper, therefore, contributes to the literature by advancing the findings of McKenzie (2017), who examined the impact of random assignment of grants on the entry, survival, profits and sales and employment growth of the beneficiary firms using the same data that we used for our analysis. Unlike McKenzie (2017) who focused on the impact of monetary incentives in propelling growth of the beneficiary firms, we emphasize the impact of a complete cycle of knowledge transmission on the growth of the firms in question. We achieve this objective by dividing our sample into two distinct groups (experimental or treatment group and comparison group) of firms and assess the impact of this complete cycle of knowledge transmission on their growth performance outcomes. The experimental group comprises firms whose owners received external training and initiated an in-house training system for their workers, while the comparison group comprises firms whose owners did not have an in-house training system for their employees but were part of the external training program. In the section on the analytical framework (Section 2), we explain in details the channels through which this complete cycle of knowledge transmission is essential for growth of firms.

Our research uses a comprehensive evaluation data from the National Business Plan Competition in Nigeria, organized by the Nigerian government in collaboration with the World Bank. The data contain a baseline survey for 2011 and a subsequent annual follow-up surveys for three years to enable adequate tracking of the entrepreneurs and their
businesses. The main aspect of the survey that was of interest to this study are the information on the entrepreneurs’ participation in the business evaluation training in the base year, and information on the entrepreneurs’ action in retraining their workers over the years. Other important information from the survey includes those that measure our main outcome variables (business performance, innovation and the growth of the size of the employees of the business).

This study, therefore, is an ex-post inquiry from previous evaluation and uses a quasi-experimental design where the decision by an entrepreneur who was previously trained by the evaluation team to organize in-house training (or retrain) for its employees is based on the choice of the entrepreneur and not any specific experimental program. As a result, a propensity score matching technique is applied to net out the impact of such choice on the entrepreneur’s business. The counterfactual is estimated from the comparison group as earlier defined. The results from the analysis show that firms that are in the “treatment” group are significantly innovative and able to grow their employees than those in the comparison group. This result is observed only after three years of the entrepreneurs’ consistent implementation of in-house training programs for their workers.

The rest of the paper is divided into five sections. Section 2 presents a brief overview of the literature and analytical framework, while Section 3 discusses the research method that includes information about the survey, the data and the estimation technique. Section 4 presents the econometric results, followed by Section 5, which concludes the paper with some directions for policy, and future research.

2. Overview of the literature and analytical framework
The literature on training and entrepreneurship growth and development can be classified into different domains. For instance, one aspect of the literature looks at the impact of entrepreneurship training on performance and growth indicators of firms (Njoroge and Gathungu, 2013; Tambwe, 2015). While some studies pay particular attention to retraining of firm employees and how this impacts the growth and survival of the firm, others examine the channel through which entrepreneurs transfer their innate attributes to their employees (Cardon, 2008; Li, Zhang, and Yang, 2017). Yet some others have emphasized the need for a shift from entrepreneurship training interventions that provide general business skills to a more focused training on subsistence and growth-oriented entrepreneurship (Titley and Anderson-Macdonald, 2015).

Despite this on-going discourse, the available literature provides pieces of evidence that are relevant for policy and further research. In their quasi-experimental study on the possibility of teaching entrepreneurial activity, Klinger and Schündeln (2011) found that receiving business training could significantly increase the probability of starting a business or expanding an already existing business. This finding corroborates evidence found in other studies that self-employment assistance programs (training) are viable policy tools to promote rapid reemployment of unemployed workers (Benus, 1995; Kosanovich et al., 2001; Dvoulety and Lukes, 2016). Blackburn (1990) studied training of workforce of small businesses in England and found a positive impact from such training on the performance outcomes of small businesses. In Romania, Rodriguez-Planas and Jacob (2010) found that a firm that engages in training and retraining contributes to improvement in its economic outcomes such as higher employment prospects.

Some empirical evidence from African countries such as Kenya and Tanzania suggests that entrepreneurship training is crucial for successful performance and growth of Micro and Small Enterprises (Njoroge and Gathungu, 2013; Tambwe, 2015). Mano et al. (2012) examined similar issue using a randomized experiment in Ghana and found that basic-level
management training improves business practices and performance. Elert et al. (2015), and Karadag (2017) also found positive effects on entrepreneurial income and firm survival from participating in entrepreneurship education and training in high school.

In yet another study, Fafchamps et al. (2014) conducted an experiment of a small business plan competition in Ghana, where winners were selected to receive individual training. The authors, however, concluded that there was no significant impact of such training on growth of firms. Such findings can be related to the assertion by Titley and Anderson-Macdonald (2015) that there is the need for entrepreneurship training programs to separate dimensions of business expertise into different training courses focused specifically on aspects such as marketing, finance or operations. In their attempt to provide insight into the missing link between benefits such as confidence derived by management of firms that participate in management training scheme and the impact of the training on the performance of the firm in general, Westhead and Storey (1996) conclude that management training may not have a’priori determined impact on firms. The authors ascribed their conclusion to factors such as lack of impact, difficulty of attributing cause and effect, poor quality of training and very short periods of training.

So far, very limited literature exists on the extent to which retraining of employees by trained entrepreneurs impact firm performance and growth. In their analysis of the efficacy of self-employment training to unemployed and other individuals interested in self-employment, Michaelides and Benus (2012) found that such training was effective in encouraging unemployed participants to start their own business, leading to significant impacts in self-employment and overall employment immediately after program entry. They further found that the program enabled unemployed participants to remain self-employed and avoid unemployment even five years after program entry. However, the authors indicate that the program was ineffective in improving the labor market outcomes of participants who were not unemployed.

We argue in this paper that capacity development in an entrepreneurs’ business is a “two-sided coin”, such that training the entrepreneur and a further action by the entrepreneur to retrain his/her workers makes the complete cycle of knowledge transmission. Training programs that contribute to the advancement of the knowledge of both business owners and workers are more effective than those that are limited to only the owners of the business. Such one sided transmission of knowledge could lead to what we term “truncation of human capital development” in the business, which is the limited impact of human development effort in the business when such efforts are not transmitted to the development of other individuals in the business, and this will consequently affect productivity and growth. We therefore contribute to the literature by emphasizing the importance of trained entrepreneurs going further to retrain their workers.

The analytical framework that underpins the argument of this paper presents two channels through which the assumed positive relationship between business productivity and cash income that comes from a complete cycle of training can be achieved. First, transfer of knowledge from trained entrepreneurs to their workers will contribute to an improved stock of skills, efficiency and innovative capacity of the business. These will contribute to high productivity and improved income of the entrepreneur’s business in the long run. Second, depending on the content of the training program, the trained entrepreneurs are expected to improve their own efficiency and leadership skill. This will directly increase their own productivity and those of their workers granted that they are able to effectively influence their workers as a result of such skill. Some of these channels have been discussed in detail in some studies such as Mason et al. (2012) and Naude (2013).
Other available pieces of evidence that support the channels through which both sides of knowledge transmission can influence the growth of entrepreneur’s businesses include increase in the speed of business development (Fagerberg et al., 2009; Audretsch and Sanders, 2011; Szirmai et al., 2011), growth in self-efficacy, passion and other business operations (Shindina et al., 2015; Riel et al., 2015).

3. Research method

3.1 The matching process

The national business plan competition in Nigeria (YouWiN!)[1], from which the survey for this study was extracted, targets individual entrepreneurs who represent their varying businesses. These entrepreneurs were trained and randomly selected into the original experimental and non-experimental groups, based on the originally defined criteria for evaluation. From the original survey, our study further categorizes the individual entrepreneurs in the experimental group into two, where those entrepreneurs who participated in the initial evaluation training and then had consistently affirmed that they had operational in-house training for their workers for a period of three years (across the survey follow-up periods) were grouped as “treatment”. On the other hand, those entrepreneurs who participated in the original evaluation training, but reported that they did not have in-house training for their workers over the period of interest were classified as the comparison group. It is important to note that the groups of entrepreneurs who were surveyed by the national business plan competition were earlier selected randomly across the different states of Nigeria. Hence, our sample is representative of Nigeria.

We use the matching technique to net out the effect of trained entrepreneurs setting up an in-house training program for their workers on the entrepreneur’s business outcome. There are some pre-conditions required for the matching technique to provide low bias and reliable evidence-based conclusion. They include:

- the data for both the “treatment” and comparison groups should be collected using similar instruments;
- both groups should have similar baseline characteristics so that, without the “intervention”, comparable outcomes can be expected of the two groups;
- finally, the propensity score function should include similar explanatory variables for both groups (Heckman et al., 1997; Glazerman et al., 2003; Cook et al., 2008; Wanjala and Muradian, 2013). Considering the nature of the data collection process of the initial YouWiN! survey, the first pre-condition is already satisfied. The second and third preconditions are satisfied in our analysis, which will be subsequently discussed. Therefore, attributing the impact of entrepreneurs who participate in the evaluation training and have set-up in-house training program for their workers can be seen as the change in the outcome of interest, supposing it is measured as the difference in the outcome of entrepreneurs in the “treatment” group \((T_i = 1)\) and those in the comparison group \((T_i = 0)\), conditioned on the entrepreneurs’ status of having in-house training program for their workers \((T)\).

Mathematically, the change in the outcome of interest is depicted as \(Y_i^{T=1}\) for the entrepreneurs in the “treatment” group and \(Y_i^{T=0}\) for those in the comparison group. The change in the outcome is, therefore, computed as:

\[ \Delta Y_i = Y_i^{T=1} - Y_i^{T=0} \]
\[ \Delta Y = Y_{i}^{T=1} - Y_{i}^{T=0} \]

Therefore, the average treatment effect will be:

\[ ATE = E(\Delta Y | T = 1) = E(Y_{i}^{T=1} | T = 1) - E(Y_{i}^{T=0} | T = 0) \]

To begin the discussion on the estimation strategy, it is important to point out that the entrepreneurs’ businesses is the unit of analysis for our study. We rely on the Propensity Score Matching (PSM) to identify comparable entrepreneurs from the “treatment” and comparison groups (Rosenbaum and Rubin, 1983). The PSM generates propensity scores, which it uses to match both groups of entrepreneurs based on their observed characteristics. The Logit model is used to estimate the propensity scores, where the action of trained entrepreneurs to set-up in-house training for their workers is seen as a binary outcome and regressed against the entrepreneur’s characteristics and those of the small business. Once the propensity score is derived from the logistic regression estimation, we then match the units in the “treatment” group with those in the comparison group based on their overlapping propensity scores that are within a common support area[3]. Our matching procedure was based on different algorithms[4]. Following Heckman et al. (1997), two conditions are considered in our analysis to validate the efficiency of the matching process. They include:

- all important characteristics that explain the decision of the entrepreneur to retrain their employees are accounted for; and
- the entrepreneurs in the “treatment” and comparison groups are similar based on the identified characteristics.

One important limitation of the PSM estimation is that it entirely depends on observable characteristics to accurately match entrepreneurs in both groups. However, there are some unobservable characteristics that can explain the entrepreneur’s action to set-up in-house training for their workers. We therefore complement the PSM with the Difference-in-Difference (DiD) technique (Gertler et al., 2011).

3.2 Applying the difference-in-difference approach

To further check the robustness of our PSM results, we apply the DiD estimation to adjust for other time-varying factors that may affect the outcome variables, as this approach eliminates further biases that are time dependent (Gertler et al., 2011). Essentially, applying the DiD approach controls for unobserved heterogeneities that may affect the outcome variables – apart from the decision of the trained entrepreneur to set-up in-house training program for his/her workers.

We used the first round of the follow-up (November 2012 and May 2013), which is the year immediately after the evaluation training and the third round of the follow-up (September 2014 and February 2015), given the need to allow for more time to observe the changes in the explained variable. The first round is classified as Year 1, while the third round is classified as Year 2. The “treatment” variable still remains the action by the trained entrepreneur to have in-house training program for his/her workers. Hence, the mathematical expression for the DiD estimation is:
\[ Y_{i,t} = \alpha + \beta \cdot \text{Treatment}_i + \gamma \cdot \text{Year}_t + \delta \cdot (\text{Treatment}_i \cdot \text{Year}_t) + \sigma \cdot X_{i,t} + \varepsilon_{i,t} \]

The outcome variables “\(Y\)” include the business performance, innovation and the growth of the number of employees in the entrepreneur’s business. The usual observable characteristics as included in the PSM estimation are denoted as “\(X_{i,t}\)”, while the error term is denoted as “\(\varepsilon_{i,t}\)”.

3.3 Variables
The observable characteristics include:

- **Entrepreneur’s confidence level**, which is transformed and measured as an ordered variable, where “1” represents not at all confident, “2” represents somewhat confident, “3” represents confident and “4” represents very confident for the following nine categories of inquiry – confident to come up with an idea for a new business product, estimate accurately the cost of a new business venture, estimate customer demand for a new product or service, sell a product or service to a customer, identify good employees, inspire, encourage and motivate employee, search for reliable suppliers, persuade lenders for finance and correctly value a business for sale;

- **Entrepreneur’s gender**, which is a dichotomous variable, where “1” for male gender and “2” for female;

- **Number of business owned by the entrepreneur**, which is a count variable capturing the number of entrepreneur’s businesses; and

- **The quality of the entrepreneurs’ involvement in the business**, which is measured as the number of hours that the entrepreneur devotes to the particular business and the number of hours that the entrepreneur spends on other businesses in a typical month.

The entrepreneur’s business observable characteristics included in the analysis are:

- the business size, which is measured as the number of customers that the business has;

- ownership status of the business, which is measured as a dichotomous variable where “1” represents sole-proprietorship and “0” otherwise;

- access to credit, a dichotomous variable which takes on the value “1” for positive affirmation that the business has access to formal credit, and “0” otherwise;

- total asset of the firm, which is another monetary measure of the business size, an estimates of the total assets owned by the firm; and

- external environment, measured as a dichotomous variable, where “1” represents a positive affirmation that the firm has been confronted with paying bribe and “0” otherwise. The selected characteristics are informed by literature on the factors that influence internal policy decisions in small businesses (Chell, 1985; Stewart et al., 1998; McMahon, 2001; Bridge et al., 2003; Ayuso and Navarrete-Báez, 2017).

3.4 Outcome variables
The outcome variables are measured as follows: **business performance** is computed as the total sales of the firm, which is measured based on the values in the Local Currency Unit. This variable was logged in the estimation models to increase its predictability. **The innovation variable** is computed as an index from a weighted response to the following questions:
• whether the small business has introduced a new product;
• improved an existing product or service;
• introduced new business process;
• implemented new design or packaging;
• introduced new marketing channel;
• new method of pricing, new approach to advertising;
• new database and supply chain;
• new way of organizing work;
• new quality control standards;
• engaged in outsourcing;
• licensed a new technology; and
• obtained a new quality accreditation. Each of these indicators was given equal weights of 1/12, such that the aggregate value of innovation ranges from 0 (low innovation) to 1 (high innovation). The last outcome variable is the job creation capacity of the business, which is measured as the number of new jobs (new employment) that the business creates in the current year.

There are three main motivations for the choice of our outcome variables. They include: first, our measure considers the different dimensions of the entrepreneurs business that show its capacity for a continuing existence. Second, the ability of an entrepreneur to be profitable in business and to be able to grow and hire more workers is a fundamental indicator of sustainable business development and industrialization (Schoar, 2010). Third, some of these measures are favored in recent empirical literature that considers high-growth business potentials (Mason et al., 2012; McKenzie, 2017).

3.5 Description of survey data and descriptive statistics
The original survey (Nigeria Youth Entrepreneurship Survey) contains a baseline survey in 2011. Three annual follow-up surveys were gathered, with the first round in November 2012 and May 2013, second follow-up in October 2013 and February 2014 and the third follow-up in September 2014 and February 2015. The evaluation training was conducted in the baseline year, and consequently, the entrepreneurs self-reports their actions to have an in-house training program for their employees across the follow-up surveys. We used the cross-sectional data from the third follow-up survey in September 2014 and February 2015 for the matching procedure.

The survey contains individual, household and extensive firm (business) level data. For the firm level data, there are very detailed information about the inputs and outputs, human resource and other additional information that are relevant for our analysis. From the survey, we focused on only entrepreneurs who own an operational business and report whether their businesses operate training programs for their employees or otherwise. Hence, the final sample for our study is made up of only 133 entrepreneurs in the “treatment” group and 1,468 entrepreneurs in the comparison group.

The descriptive statistics of the characteristics of the entrepreneurs and their businesses computed from the third wave of the survey, which is our main data set for the matching, are reported in Table I. It is evident from the table that most of the entrepreneurs in the survey were male, representing over 80 per cent for both the entire sample and the sub-groups. The entrepreneurs – the entire and the sub-groups – own only one business.
## Table I. Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total (mean, SD, N)</th>
<th>'Treatment' (mean, SD, N)</th>
<th>Comparison (mean, SD, N)</th>
<th>$t/p^*$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td><strong>Entrepreneurs Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (1 = male, 2 = female)</td>
<td>0.85 0.36 1,581</td>
<td>0.89 0.32 133</td>
<td>0.84 0.37 1,448</td>
<td>−1.41</td>
</tr>
<tr>
<td>Businesses owned (#)</td>
<td>1.29 0.62 1,581</td>
<td>1.38 0.67 133</td>
<td>1.28 0.62 1,448</td>
<td>−1.87*</td>
</tr>
<tr>
<td>Hours put into business (#)</td>
<td>44.26 22.63 1,581</td>
<td>48.95 26.05 133</td>
<td>43.83 22.25 1,448</td>
<td>−2.50**</td>
</tr>
<tr>
<td>Hours put into other businesses (#)</td>
<td>12.24 15.84 838</td>
<td>10.68 12.98 133</td>
<td>12.37 16.07 1,448</td>
<td>0.83</td>
</tr>
<tr>
<td>Confidence level (1 = low; 4 = high)</td>
<td>1.99 1.57 1,601</td>
<td>3.24 0.31 133</td>
<td>1.93 1.59 1,468</td>
<td>−9.49***</td>
</tr>
<tr>
<td><strong>Business Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership status (1, Sole proprietor; 0, otherwise)</td>
<td>0.48 0.50 1,601</td>
<td>0.65 0.48 133</td>
<td>0.47 0.49 1,468</td>
<td>−3.94***</td>
</tr>
<tr>
<td>Customers of business (# of customers)</td>
<td>90.65 315.72 1,601</td>
<td>102.32 235.72 133</td>
<td>89.95 320.03 1,468</td>
<td>−0.23</td>
</tr>
<tr>
<td>Access to credit (1 = yes if access to credit and 2 = no)</td>
<td>0.18 0.39 1,581</td>
<td>0.29 0.46 133</td>
<td>0.17 0.38 1,448</td>
<td>−3.55***</td>
</tr>
<tr>
<td>External environment (1 = YES if business is confronted with corrupt demands – e.g. bribe)</td>
<td>0.10 0.29 1,581</td>
<td>0.16 0.37 133</td>
<td>0.09 0.29 1,448</td>
<td>−2.46**</td>
</tr>
<tr>
<td>Total asset of the firm (000, 000)</td>
<td>6.44 1.65 1,601</td>
<td>16.60 27.30 70</td>
<td>5.88 15.50 1,468</td>
<td>−7.37***</td>
</tr>
<tr>
<td><strong>Outcome Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation (0, low and 12, high)</td>
<td>4.663 3.385 1,601</td>
<td>7.278 2.689 133</td>
<td>4.426 3.342 1,468</td>
<td>−9.563***</td>
</tr>
<tr>
<td>Total monthly sales (value in LCU, 000, 000)</td>
<td>0.904 2.335 1,496</td>
<td>1.265 2.446 133</td>
<td>0.870 2.323 1,363</td>
<td>−1.872*</td>
</tr>
</tbody>
</table>

**Notes:** LCU means local currency unit, which is the Nigerian Naira. The total asset of the firm and the Hrs. spent working in other businesses are presented in their real values and not in their logged form as in other tables in Section 4. This is to display the actual values before presenting their logged coefficient for the estimation results.
Comparing the entrepreneurs in the “treatment” and those in the comparison group, there is a significant difference in the number of businesses owned by the entrepreneurs across the two groups. Likewise, the number of hours that entrepreneurs invest in their businesses, and their confidence level significantly differs across the two groups. The entrepreneurs in the “treatment” group put in more hours in running their business, and they are more confident than their counterpart in the comparison group.

With regards to the entrepreneurs’ business characteristics that are reported in Table I, it is evident that the differences in the number of customers of the businesses of entrepreneurs in both groups are not significant. This is also applicable to the number of hours that the entrepreneur spent on other businesses apart from the primary business. However, significant difference was observed for the ownership status, access to credit, corruption problem that confront the business and the total assets of the businesses. About 65 per cent of the entrepreneurs in the “treatment” group operate a sole-proprietorship type of business, unlike the comparison group (47 per cent), while 29 per cent of the businesses of the entrepreneurs in the “treatment” group have access to credit, compared to only 17 per cent in the comparison group. Also, more of the businesses in the “treatment” report corruption as a major issue that they are confronted with, compared to those in the comparison group. Finally, the average size of the businesses in the “treatment” group (based on total assets) is about three times larger than those in the comparison group, and this difference is significant at 1 per cent level.

The kernel density plot is also used to further present the outcome variables across the two groups of entrepreneurs’ businesses. The kernel density plots in Figure 1 reveals that in all the plots (a-c), the density for the entrepreneurs in the “treatment” group perfectly overlaps with those of the comparison group. This suggest that there is a rightward bias for innovation, revenue and job creation outcome of the businesses of entrepreneurs in the “treatment” group, relative to those in the comparison group. The implication is that the businesses of the entrepreneurs who were trained and went further to organize an in-house training program for their workers have a high-growth potential than those in the comparison group. The graph also supports the earlier observation in the descriptive statistics of the three outcome variables in Table I that there is a significant difference in the outcome variable for those businesses in the “treatment” group compared to the comparison group.

4. Econometric results
We begin the econometric analysis by presenting the results from the logistic regression and the balancing tests from the matching process. Table II shows that gender, access to credit, exposure to institutional crisis (like corruption), size of the firm and the number of hours that the entrepreneur put in other businesses apart from his current business were significantly associated with the choice of trained entrepreneurs having to set up an in-house training program for workers. The correlation between the choices of training the employees, the size of the entrepreneur’s businesses and the number of hours that the entrepreneur spends on other businesses apart from his current business follow logical expectation. For instance, entrepreneurs with large business size, but with insufficient time input in their current business, rely more often on training their workforce to enhance efficiency and to reduce the cost of monitoring. The significant coefficient for the gender variable may be linked to the fact that more male entrepreneurs are likely to engage in training their workers, especially when considering the social setup in Nigeria where men desire to gain industry competitive advantage. Yet more entrepreneurs with access to credit tend to be more aligned with training their workers. But with increased business exposure to corruption, entrepreneurs tend to reduce their implementation of in-house training for their employees.
The next step in the PSM estimation is to present the results of the balancing quality checks, which are reported in Figure 2 and Table III. Figure 2 shows the propensity score distribution of the two groups of entrepreneurs. It is evident from the figure that the entrepreneurs in the “treatment” group have equivalent matches from those in the comparison group. There is an adequate overlap between the two groups of entrepreneurs to justify the use of PSM. The region of common support is wide enough to generate adequate match for the PSM estimation.

The comparison of the differences between the two groups, in terms of the overall covariance distribution (mean and median absolute bias) and the model fit (pseudo $R^2$ and LR-test) before
and after the matching, are presented in Table III. The results for the NNM, KM and RM in Table III suggest that the pre-matching differences in the observable characteristics of the entrepreneurs (across the two groups) are significantly reduced after the matching. For instance, the mean absolute biases are significantly reduced for the three matching algorithm, and the \( p \)-values of the LR test are no longer significant for post-matching.

\[
\text{Table II. Logistic regression}
\]

<table>
<thead>
<tr>
<th>Dependent variable: Implementation of retraining workers</th>
<th>Coefficient</th>
<th>Robust standard error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (1 = male, 2 = female)</td>
<td>-0.844*</td>
<td>0.445</td>
</tr>
<tr>
<td>Businesses owned (#)</td>
<td>-0.277*</td>
<td>0.146</td>
</tr>
<tr>
<td>Hours put into business (#)</td>
<td>0.671*</td>
<td>0.342</td>
</tr>
<tr>
<td>Confidence level (1 = low; 4 = high)</td>
<td>-1.093</td>
<td>1.099</td>
</tr>
<tr>
<td>Ownership status</td>
<td>-0.484</td>
<td>0.632</td>
</tr>
<tr>
<td>Customers of business (# of customers)</td>
<td>-0.008</td>
<td>0.001</td>
</tr>
<tr>
<td>Access to credit (1 = yes if access to credit and 2 = no)</td>
<td>-1.307**</td>
<td>0.659</td>
</tr>
<tr>
<td>Corruption (1 = yes if business is confronted with corrupt demands – e.g. bribe)</td>
<td>-1.693**</td>
<td>0.677</td>
</tr>
<tr>
<td>Total asset of the firm (log)*</td>
<td>0.473**</td>
<td>0.241</td>
</tr>
<tr>
<td>Hrs. spent working in other businesses (log)*</td>
<td>0.273*</td>
<td>0.142</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.935</td>
<td>3.213</td>
</tr>
<tr>
<td>( Pseudo R^2 )</td>
<td>0.200</td>
<td>0.290</td>
</tr>
<tr>
<td>( Wald \chi^2 )</td>
<td>86.66 (0.000)</td>
<td>1180</td>
</tr>
</tbody>
</table>

\text{Notes:} The value in parenthesis is the probability value of Wald test. The superscript *, ** and *** imply significant levels at 10, 5 and 1 per cent, respectively

\[
\text{Table III. Matching quality}
\]

<table>
<thead>
<tr>
<th>Matching algorithms</th>
<th>Models</th>
<th>Sample</th>
<th>( \text{Total sample pseudo } R^2 )</th>
<th>LR chi-square</th>
<th>( p &gt; \text{Chi-square} )</th>
<th>Mean bias</th>
<th>Median bias</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five nearest neighborMatching (NNM)</td>
<td>Innovation</td>
<td>Unmatched</td>
<td>0.196</td>
<td>16.82</td>
<td>0.078</td>
<td>30.8</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>Revenue</td>
<td>Unmatched</td>
<td>0.189</td>
<td>16.28</td>
<td>0.061</td>
<td>31.7</td>
<td>29.0</td>
</tr>
<tr>
<td></td>
<td>Job creation</td>
<td>Unmatched</td>
<td>0.194</td>
<td>16.35</td>
<td>0.038</td>
<td>35.7</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Matching</td>
<td>0.107</td>
<td>4.01</td>
<td>0.856</td>
<td>18.6</td>
<td>17.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovation</td>
<td>Unmatched</td>
<td>0.196</td>
<td>14.73</td>
<td>0.099</td>
<td>29.5</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Revenue</td>
<td>Unmatched</td>
<td>0.177</td>
<td>14.73</td>
<td>0.099</td>
<td>29.5</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Job creation</td>
<td>Unmatched</td>
<td>0.194</td>
<td>16.35</td>
<td>0.038</td>
<td>35.7</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Matching</td>
<td>0.094</td>
<td>3.65</td>
<td>0.933</td>
<td>18.0</td>
<td>11.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Innovation</td>
<td>Unmatched</td>
<td>0.196</td>
<td>16.82</td>
<td>0.078</td>
<td>30.8</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>Revenue</td>
<td>Unmatched</td>
<td>0.177</td>
<td>16.82</td>
<td>0.078</td>
<td>30.8</td>
<td>26.5</td>
</tr>
<tr>
<td></td>
<td>Job creation</td>
<td>Unmatched</td>
<td>0.194</td>
<td>16.35</td>
<td>0.038</td>
<td>35.7</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Matching</td>
<td>0.083</td>
<td>3.21</td>
<td>0.976</td>
<td>16.1</td>
<td>17.9</td>
<td></td>
</tr>
<tr>
<td>Radius matching</td>
<td>Revenue</td>
<td>Unmatched</td>
<td>0.177</td>
<td>14.73</td>
<td>0.099</td>
<td>29.5</td>
<td>25.5</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>0.067</td>
<td>2.59</td>
<td>0.978</td>
<td>14.9</td>
<td>16.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Job creation</td>
<td>Unmatched</td>
<td>0.194</td>
<td>16.35</td>
<td>0.038</td>
<td>35.7</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>Matched</td>
<td>0.086</td>
<td>3.34</td>
<td>0.911</td>
<td>16.7</td>
<td>12.2</td>
<td></td>
</tr>
</tbody>
</table>

\text{Notes:} The N for generating this table is 1,180 observations. The \( p \)test for each of the individual observable characteristics that also shows the matching quality are available upon request. They were not included in this report for space.
4.1 Growth performance differences: Matching and regressions
The matching estimates are presented in Table IV. In addition, the Ordinary Least Square (OLS) estimation techniques with the three matching algorithms (NNM, KM and RM) were estimated and included in Table IV for robust checks.

The OLS results show that there is a significant increase in the innovation, revenue and job creation outcome of entrepreneur’s business as a result of taking further actions to set-up a training program for its workers. The OLS estimates for the three outcome variables are within the same range as those of the matching algorithms. For the NNM matching algorithm, for instance, the innovation outcome of the entrepreneur’s business from training its workers significantly increased by 3 to 4 point, compared to what it would have been assuming its workers were not trained. These results are consistent across the different matching algorithms. For the job creation outcome, we found that there is a significant increase in the number of jobs created within the entrepreneur’s businesses assuming the entrepreneurs support consistent in-house training of its workers. This increase was about two new jobs created annually. For the revenue outcome, we do not find a consistent significant increase in the revenue size for the entrepreneur’s businesses that support in-house training of its workers. Although the result was positive – suggesting a positive impact – we cannot verify this impact considering that it was not significant at either 1, 5 or 10 per cent levels of significance.

To check the robustness of these findings, we perform the Rosenbaum bounds test reported in Table V. The test shows the probability values from the Wilcoxon’s signed rank
test, which presents the highest critical values that; the average treatment effect on the treated remains significantly different from zero. From the table, we see that the probability value is quite close to the estimated values in Table IV. The estimates in Table V indicates that the results in Table IV are valid assuming there is no hidden bias because of unobserved confounder. Thus, even the presence of unobserved differences in the covariates would not change our result. This is especially for the innovation and job creation model. However, for the revenue model, we need to exert some level of caution in inference, considering that the model is highly sensitive to unobserved differences. More so, the data does not allow us make inferences about the content of the training and the extent to which it influences the results.

### 4.2 Further analysis using the difference-in-difference approach

The results of the DiD estimations are presented in Table VI, and it is evident that the estimates corroborate the results of the PSM in Table IV. As earlier observed in Table IV, the value of the outcome variables of entrepreneurs who initiated an in-house training for their workers were significantly higher than those who did not initiate such training in their businesses. The innovation and job creation outcome variables remain positive and significant, but the revenue variable remains insignificant, despite that it was positive as in Table IV. The size of the impact is within the same range as that of Table IV for the outcome variable – job creation. However, for the innovation variable, the DiD result shows a slightly higher increase compared to the result in Table IV. This increase may be as a result of the sensitivity of this variable to some unobserved factors that are conditioned on time.

The findings in Tables IV and VI corroborate those in previous studies that training and other human capital development activity that are organized within entrepreneurs' businesses have a significant positive impact on business outcomes. Our results are in line
with those of Millennium Challenge Corporation (2012), who used both quasi and pure experimental design to evaluate the impact of training and development on the outcome of agricultural entrepreneurs (farmers) in Honduras. Specifically, our findings support those of Duy et al. (2014), who find that the impact of investment in human capital on performance of the small and medium enterprises (SMEs) in Vietnam results in a significant positive impact on short-term performance, but not revenue and profit of the SMEs. More so, fast growing entrepreneur businesses are such that seek to meet their skill requirements through substantial training of their employees as well as searching for other human capital development activities that can improve their business outcomes (Mason et al., 2012).

5. Conclusion
Training programs that are directed at entrepreneurs are seen as an important catalyst for business growth and development. Likewise, entrepreneurs’ implementation of policies that support in-house retraining for their employees is also supposed to be important for high-growth business performance. Nonetheless, there is generally a lack of strong evidence to explain the later relationship. In this study, we provide empirical evidence to explain this relationship using a unique dataset from the Nigeria Youth Entrepreneurship Survey, which is part of the Youth Enterprise with Innovation in Nigeria (YouWiN!) Impact Evaluation survey. Using the propensity score matching technique, we examine the difference in revenue, innovation and employee growth of firms where the entrepreneurs were trained and they went ahead to set-up in-house training for their workers, compared to those who were trained but did not have an in-house training for their workers. We also conduct some sensitivity checks using the Rosenbaum bounds test and the DiD estimation technique to support our main finding.

From our analysis, we find that entrepreneurs who were earlier trained by the evaluation team and who went further to organize in-house trainings for their employees outperform their counterparts in the comparison group (i.e. those who never had any training for their workers). The experimental group were found to be more innovative and able to grow their businesses in terms of size of employee. We do not find a significant effect of retraining of employees by trained entrepreneurs on the revenue of the entrepreneur’s business. The positive effect of having an in-house training for employees on innovation and the growth in the number of employees are explained based on a logical expectation that employees who get trained will naturally be more innovative. For the growth in employee size, we infer that engaging in in-house trainings will boost the productivity and profitability of the small business, which will further broaden the capacity of such business to employ more individuals (Haltiwanger et al., 2015).

<table>
<thead>
<tr>
<th>Multivariate linear regression</th>
<th>Coefficient</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated impact on innovation</td>
<td>5.002***</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Estimated impact on revenue</td>
<td>170,000</td>
<td>(0.682)</td>
</tr>
<tr>
<td>Estimated impact on job creation</td>
<td>2.390***</td>
<td>(0.003)</td>
</tr>
</tbody>
</table>

Notes: N for the regression models for innovation, revenue and job creation are 1,601, 1,496 and 1,542, respectively. The superscripts *** imply significant levels at 1 per cent.
The results imply that policies that encourage just the training of entrepreneurs may be limited in the scope of impact if steps are not taken to ensure that the trained entrepreneurs go further to retrain their workers in their businesses. McKenzie (2017) did not emphasize this aspect, probably because the authors focused on the impact of the financial grant that was given to some participants of the initial evaluation training on the high-growth outcome of their businesses. Hence, our study suggest that it is important for entrepreneurs who receive such training to retrain their workers to have a better business outcome.

Just like many other scientific studies, ours is not void of some caveats that should be noted when interpreting our results. First, we used a survey data on entrepreneurs who self-reported that they organized in-house training program for their employees after receiving the initial evaluation training. Information pertaining to the content of such in-house training was not clearly stated in the survey. While we emphasize the importance of our finding, we are of the opinion that data from a well-structured instrument for data collection that include information on the specific subject matters covered in the original training and subsequent in-house trainings, will be very important for future analysis. These will also enable future studies to be in a position to provide detailed information on how the in-house training program could affect business growth and performance.

The second caveat that should be observed is that our data does not reflect whether the in-house training organized by the entrepreneurs was spurred by the earlier training that they received from an outside source. While we follow logical reasoning and strong assumptions that the in-house training organized by the entrepreneur will have contents of the earlier training that these entrepreneurs received from an outside source, it will be important for future studies to have a clear understanding of whether the in-house training contains contents of the previous training that the entrepreneur was exposed to. Noting these caveats, our findings should be seen as a first guide on how training entrepreneurs and those steps taken to retrain the workers of such entrepreneurs affect business growth and performance.

Notes

1. It is important to note that the matching procedure should be based on the baseline characteristics; however, as the outcome variable of interest was for the third follow-up survey, we used the characteristics as presented in the follow-up survey.

2. The common support region is the area within the minimum and maximum propensity scores of the ‘treatment’ (trained entrepreneurs who report that they have in-house training programme for their workers) and comparison groups (trained entrepreneurs who report that they do not have in-house training programme for their workers), respectively, which is demarcated by excluding those observations whose propensity scores are smaller than the minimum of the ‘treatment’ group and greater than the maximum of the comparison groups (Caliendo and Kopeinig 2008).

3. The Nearest Neighbour Match (NNM), the Kernel Match (KM) and the Radius Match (RM) are the three-selected algorithm for this study. The NNM algorithm compares the outcome of entrepreneurs in ‘treatment’ group with the closest and most similar entrepreneurs in the comparison group, based on the propensity score. The KM algorithm produces more efficient results and it is more suitable for dealing with large, asymmetrically distributed dataset. Hence, entrepreneurs in the ‘treatment’ group are matched with those in the comparison group based on weights that are inversely proportional to the distance between them and those in the comparison group. The RM is such that the distance between the propensity scores of the entrepreneurs in the ‘treatment’ group and the comparison are within a specified radius. Hence, their propensity scores are similar and are within the same radius.
4. The YouWin evaluation was originally for the work of McKenzie (2017), who examined the impact of a business plan competition for entrepreneurs who were trained and given financial grants averaging US$50,000 each, paid out in four tranche payments conditional on achieving basic milestones as defined by the evaluation team. Candidates who attended the training were eligible to submit proposals, from which some of the participants were randomly selected for the evaluation study. The evaluation training was for a period of four days of preparation of business plan and an additional training consisting of a two-day bootcamps run by the UK School for start-ups on issues related to cash-flow management, sales, purchasing and team management. Readers can access McKenzie (2017) for more elaborations on the ‘YouWin’ program.

References


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