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Eijdenberg, Emiel L.; Sabokwigina, Deo; Masurel, Enno

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Performance and environmental sustainability orientations in the informal economy of a least developed country

Performance
and ESOs

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Emiel L. Eijdenberg

University of Hohenheim, Stuttgart, Germany

Deo Sabokwigina

University of Iringa, Iringa, Tanzania, and

Enno Masurel

Vrije Universiteit Amsterdam, Amsterdam, The Netherlands

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Abstract

Purpose – The purpose of this paper is to investigate the extent to which performance and environmental sustainability orientations (ESOs) are developed, as well as their association, in a typical impoverished community: the informal economy of an African least developed country (LDC).

Design/methodology/approach – Based on a literature review and a pre-study on the spot, a questionnaire was developed before being completed by 140 informal food vendors – that is, “subsistence entrepreneurs” – in Tanzania. *t*-Tests, correlation analyses and regression analyses were carried out to approach the formulated hypotheses.

Findings – The results showed that a significant distinction can be made between basic and advanced performance. In addition, the respondents showed significantly higher levels of awareness of ESO practices that are intangible and are not fully within their control than the so-called personal tangible ESO practices. However, performance was minimally affected by ESOs.

Originality/value – While firm performance and environmental sustainability have been shortlisted on agendas outside academia (e.g. international development organisations) as a means to develop LDCs, the scientific community is lagging behind with regard to these two. This paper is one step forward in unravelling how performance and ESOs occur in LDCs.

Keywords Sustainability, Developing countries, Small firms, Firm growth

Paper type Research paper

Introduction

For decades, the *Zeitgeist* of mainstream western[1] management literature maintained that entrepreneurs were economic agents and that their actions were the drivers of the economy (Kirzner, 1974, 1997; Schumpeter, 1934). However, with increasing globalisation and societal changes, this perspective has changed to more nuanced and tailored explanations of entrepreneurship(hip) (Kuckertz, 2017; Van Gelderen and Masurel, 2012). One of these explanations relates to how entrepreneurship occurs in the informal economy. In the informal economy, many people operate as so-called “subsistence entrepreneurs”: those who run a business in order to survive (Eijdenberg and Borner, 2017). These subsistence entrepreneurs are the founders and owner–managers of one or multiple (informal) micro and small enterprises (MSEs): these are “one-person operations, poorly managed, sometimes temporary, less productive, and undercapitalized” (Kiggundu, 2002, p. 248).

The informal economy constitutes a large share of the gross domestic product (GDP) of sub-Saharan Africa (Schneider, 2002; International Labour Organization, 2002), which is the region with the majority of the world’s least developed countries (LDCs). More than 70 per cent of the world’s LDCs are on the African continent (United Nations, 2017a). In economically vulnerable countries such as LDCs, the informal economy plays an



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important role in everyday life (Webb *et al.*, 2013). One of these “typical” African LDCs is Tanzania, the context of this study. Tanzania meets all the LDC criteria stipulated by the United Nations (UN), namely low income, quantified by gross national income per capita; low human capital stock, measured by the human asset index; and high economic vulnerability, determined by the economic vulnerability index (United Nations, 2017b).

“A large gap exists between the significant importance of the informal economy to commerce around the world and the small amount of informal economy research with which entrepreneurship and strategic management scholars have been involved” (Webb *et al.*, 2014, p. 1); however, the informal economy is slowly gaining attention in the scholarly community (e.g. De Castro *et al.*, 2008; Honig, 1998; Siqueira and Bruton, 2010; Webb *et al.*, 2009). Informal entrepreneurship has been discussed as a means to fight poverty, because it affects economic development at all levels of society (e.g. Cragg and King, 1988; Rutherford and Oswald, 2000). Therefore, firm performance (hereafter referred to as just “performance”) – as generator of economic development – is necessary, and this also stems from MSEs. In management literature, the performance of entrepreneurs in African LDCs has been increasingly studied (e.g. Eijdenberg *et al.*, 2015, 2017; Frese *et al.*, 2002; Krauss *et al.*, 2005). Recently, consensus among researchers has been reached that measures of personal wealth may be more accurate estimators of performance in the informal economy than business-related measures, such as sales and number of employees (cf. Eijdenberg, 2016; Eijdenberg and Borner, 2017). The reason is that the economic and social circumstances of the informal economy differ significantly from those of the formal economy, and the applicability of western typologies and performance measures may decrease dramatically in the context of African LDCs. Therefore, examples of personal wealth, such as subsistence entrepreneurs’ ability to send their children to school or obtain healthcare, are suitable measures of their performance (Eijdenberg, 2016).

Numerous determinants of performance have been studied at various levels: individual, firm and environmental (e.g. Hernández *et al.*, 2007; Liedholm, 2002; Nichter and Goldmark, 2009; Reijonen, 2008; Tambunan, 2008; Toledo-López *et al.*, 2012; Van Dijk and Sverrisson, 2003). One important determinant of performance is the entrepreneur’s environmental sustainability orientation (ESO), which is assessed at the individual level. An ESO is the “strategic stance of firms to integrate natural environmental considerations into their business strategy” (Roxas *et al.*, 2017, p. 164). It is also often used to describe the attitude of an entrepreneur towards ecological, social and economic concerns (Kuckertz and Wagner, 2010; Roxas and Coetzer, 2012) – for example, the extent to which the entrepreneur is engaged in recycling material. Sustainability has gained a high priority not only within but also beyond the scientific community. In 2015, the UN General Assembly adopted the “2030 Agenda for Sustainable Development”, which includes the new 17 Sustainable Development Goals (SDGs). These SDGs took effect upon the expiration of the Millennium Development Goals to end poverty and hunger, especially in the LDCs. The development of a sustainable economy is seen as one of the key factors in the improvement of people’s livelihoods (United Nations Educational, Scientific and Cultural Organization, 2016). Specifically, one of the 17 SDGs promotes work and sustainable economic growth by supporting the policies of small businesses and labour-intensive sectors and by encouraging people to engage in sustainable production and consumption (United Nations, 2015).

Given the girth of the informal economy in African LDCs and how subsistence entrepreneurs’ performance contributes to poverty alleviation in this context, a research gap can be identified. While ESOs might be more established in the western context and have received significant attention as a key global agenda goal, they are relatively unexplored in the context of the informal economy in African LDCs. ESOs have remained unexplored for a number of reasons: collecting data in contexts such as African LDCs is challenging (Kolk and Van Tulder, 2010; Kriauciunas *et al.*, 2011); as a consequence, researching western

typologies in non-western contexts may lead to low explanatory power and, therefore, disappointing results (Eijdenberg, 2016; Frese *et al.*, 2002; Krauss *et al.*, 2005); there is a lack of information about success stories and examples of top performers (Bureau and Fendt, 2011; Khavul *et al.*, 2009; Toledo-López *et al.*, 2012; Webb *et al.*, 2009); and there is a perception that any contribution of subsistence entrepreneurs in African LDCs, and possibly also their ESOs, is marginal and, therefore, irrelevant to research. Consequently, the aim of this study is to fill this research gap by answering the following research questions (RQs):

RQ1. To what extent are the performance and ESOs of informal subsistence entrepreneurs developed in an African LDC?

RQ2. How do the ESOs of informal subsistence entrepreneurs in an African LDC affect their performance?

The RQs in this paper are answered based on the analysis of a unique group of 140 subsistence entrepreneurs in an African LDC: informal food vendors in Tanzania. To detect how performance and ESOs are developed and the association between them, six hypotheses are proposed in the next section, which is the literature review. Next, there is a section on the applied methodologies. Thereafter, in the results section, the hypotheses are tested based on different analyses. The paper closes with a discussion, which is followed by the conclusion.

Literature review

Subsistence entrepreneurs and their performance in an African LDC

After the work of Richard Cantillon (1755), Schumpeter (1934) shaped the research field of entrepreneurship by clarifying that its actors – entrepreneurs – are the key characters who design the economy on the basis of creative destruction: innovation is forced and should create growth. However, in the context of African LDCs, the extent to which innovation is forced and growth is realised differs from the reality in western countries, upon which Schumpeter's thoughts largely relied.

African LDCs are typically characterised by their poor infrastructure, considerable poverty, low life expectancy and government and market failure (Organisation for Economic Co-operation and Development, 2016; Rivera-Santos *et al.*, 2015). In African LDCs, entrepreneurship is important for economic development, but because of poverty, it occurs under significantly different circumstances. A number of these circumstances combine to form the informal economy, which comprises a business field in which the majority of the entrepreneurs (owner-managers) run their MSEs at the subsistence level. These are not related to small- and medium-sized enterprises (SMEs): in contrast, SMEs are generally larger, better organised and more formal. In the light of the aforementioned circumstances, the informal economy is the last resort that enables many people in resource-constrained environments to offer at least some employment, a small amount of income and small-scale production with close to zero differentiation between the input factors of capital and labour (International Labour Organization, 1993). These informal subsistence entrepreneurs sell everyday goods and rely heavily on their relationships with family, vendors and customers (Khavul *et al.*, 2009; Organisation for Economic Co-operation and Development, 2005; Viswanathan *et al.*, 2014). The informal economy involves “the paid production and sale of goods and services that are legitimate in all respects besides the fact that they are unregistered by, or hidden from, the state for tax and/or benefit purposes” (Williams and Nadin, 2010, p. 363). The subsistence entrepreneurs provide income and employment, increase diversity in the industry sector and contribute to a market economy. The informal economy consists of businesses that are unregistered, untaxed and unregulated (Asiedu and Agyei-Mensah, 2008; Spring, 2009; Williams and Nadin, 2010). Moreover, property rights are rarely determined, and, to a great extent, laws, courts and rules do not exist (Webb *et al.*, 2014).

As in the formal economy, the principles of the informal economy are based on demand and supply. The subsistence entrepreneurs purchase produce, configure them to achieve a certain added value and then sell them, which consequently delivers them a certain profit. Some subsistence entrepreneurs perform better than others, and the notable few who stand out are generally seen by the others as the *forlorn hope*. Their performance is usually reflected in measures that differ from those used for entrepreneurs in western countries. A number of studies in development economics have shown that under extreme poverty, consumer durables can be suitable measures for assessing performance. Examples are the possession of a refrigerator; access to piped water, electricity and a television; and/or the ability to build a house out of quality materials (e.g. Bhorat and Van der Westhuizen, 2013; Paige and Littrell, 2002; Pouw and Elbers, 2012; Sahn and Stifel, 2000). In Tanzania's informal economy, the development of personal wealth as a proxy for performance has been used – for example, the ability to buy food on a daily basis, to send one's children to school and to obtain healthcare (Eijdenberg, 2016; Eijdenberg and Borner, 2017).

Progress in one of these measures means better performance: livelihoods improve, and people are able to escape their extremely impoverished circumstances. Here, the temporal dimension of performance is important: common knowledge suggests that the longer an individual has been a subsistence entrepreneur, the more likely it is that the individual has achieved surpassed performance and is at an advanced performance stage. However, many different factors (e.g. subsistence entrepreneurs' characteristics, such as gender and education; and institutional factors, such as the access to capital and infrastructure) inhibit further development of the business, and hence: the progress of performance measures (Eijdenberg *et al.*, 2018; McDade and Spring, 2005; Singh *et al.*, 2011). That means that continuity of businesses at the subsistence level is limited. Therefore, performance needs to be assessed – and for accuracy reasons in mutual agreement with locals – in short time periods, for example over the last three years of business operation or even shorter (e.g. Frese *et al.*, 2007; Krauss *et al.*, 2005; Roxas *et al.*, 2017).

It is highly likely that there is a clear distinction between the bare necessities (the so-called basic performance), such as the ability to buy food on a daily basis, which are more important than the more advanced performance measures, such as the ability to build a house, send one's children to school and obtain healthcare. Therefore, the following hypothesis is proposed:

- H1.* There is a significant distinction between basic performance and advanced performance for subsistence entrepreneurs in the informal economy of an African LDC.

The ESOs of subsistence entrepreneurs

Sustainable entrepreneurship (seen as the core of the business) is a relatively new field of research and practice, and it is in need of further investigation (Shepherd and Patzelt, 2011). However, sustainable entrepreneurship is gaining importance, as environmental degradation and climate change are having an increasing impact on people and ecosystems across all continents (Cohen and Winn, 2007; International Panel on Climate Change, 2014). According to the *Oxford Dictionary* (2017), sustainability is defined as “the ability to be maintained at a certain rate or level” (paragraph 1) and “avoidance of the depletion of natural resources in order to maintain an ecological balance” (paragraph 1.1). Hence, sustainability may either involve continuity (e.g. by survival) or may have some sort of environmental implication (Berns *et al.*, 2009; Smith and Sharicz, 2011). Concerning the latter, sustainability may involve a particular focus on balancing economic, social and ecological interconnections. This is often referred to as the triple bottom line perspective (Winn and Kirchgeorg, 2005).

In regard to the RQs, especially the ecological aspect is important given the “ESO(s)”. Ecological entrepreneurship, which is sometimes referred to as “ecopreneurs(hip)” (see, for a

discussion of the definition, Kirkwood and Walton, 2014), focusses primarily on the environment by developing technologies or offering services to reduce the environmental impact of enterprises and people. One of its idealistic objectives is changing the mindset of people and thereby the world by encouraging greater ecological sustainability. In our study, an ESO is defined as an entrepreneur's practical involvement in ecological activities – for instance, whether he or she recycles materials to produce new products.

Despite the challenges as pointed out previously, subsistence entrepreneurs in African LDCs are expected to be concerned with sustainability. Why? Because of the aim of making progress even it concerns making money for survival. In the resource-based view (RBV) (Barney, 1991; Grant, 1991), a business' competitive advantage – regardless multinational enterprises (MNEs), SMEs or the MSEs that are owned by subsistence entrepreneurs – lies in the resources (tangible and intangible) it possesses. These resources need to be valuable, rare, non-substitutable and inimitable in order to have superior advantages over competitors (Barney, 1991; Grant, 1991). The RBV has been extended by the natural RBV: businesses taking into account the constraints of the natural environment (Hart, 1995), as included in ESOs. Thus, possessing and skilfully employing ESOs is one of the routes for subsistence entrepreneurs to better (personal) circumstances.

In order to improve circumstances, African LDCs have increasingly become the subject of sustainability research (Dobers and Halme, 2009; Kolk and Lenfant, 2013; Ite, 2004) and ESOs have often been integrated into the corporate social responsibility (CSR) practices. Typical determinants of CSR practices and policies are company size, industry sector, profitability and corporate governance mechanisms; however, most importantly, in the developing country context, CSR is heavily influenced by the institutional environment, such as investors, the media and international regulatory bodies (Ali *et al.*, 2017). However, the African LDC context is typically characterised by a small large-scale sector and a large small-scale sector (McDade and Spring, 2005). Sustainability in the latter sector has been greatly overlooked in the management literature.

“Although environmental and social issues have been often researched in large organizations, SMEs have received limited attention” (Choongo *et al.*, 2016, p. 4). In regard to SMEs, the term “ESOs” is more suitable than CSR, because ESOs typically relate to the person or persons behind the SME – that is, the owner(s) – while CSR refers to the practices of the larger collective, such as MNEs and non-governmental organisations. Empirical evidence and the notions of ESOs and sustainability in general come for a great deal from western society (see e.g. recently in 2017: Fischer *et al.*, 2018; Gasbarro *et al.*, 2018; Vuorio *et al.*, 2018); we, therefore, rely extensively on empirical evidence from that context. A few studies have found a negative correlation between a firm's social and ecological engagement and its financial performance (Vance, 1975; Wright and Ferris, 1997), while others have found a positive correlation (Hart and Dowell, 2011; Choongo, 2017; Russo and Fouts, 1997; Simpson and Kohers, 2002; Vitezic, 2011).

Based on the few studies that have been conducted in the context of developing countries – c.q. LDCs – we know that SME owners need to be financially, morally and ethically motivated to have certain ESOs in the first place (Choongo *et al.*, 2017). Second, we know from studies conducted in LDCs that SMEs' performances benefit from the pursuit of ESOs for various reasons, such as stakeholder pressure, as well as visibility in and engagement with local communities (see e.g. Leonidou *et al.*, 2016; Roxas *et al.*, 2017; Tang and Tang, 2012; Vazquez-Carrasco and Lopez-Perez, 2013). Although the notion of SMEs has been taken as the point of departure for the current study, much remains unknown about the subsistence entrepreneurs in the informal economies of LDCs. Therefore, this study takes a step back by identifying the importance of ESOs in Tanzania's informal economy as they are developed in the context itself. First, in terms of the intangible awareness and lack of full control (e.g. awareness of how the business pollutes the

environment and the subsistence entrepreneurs' financial contribution for services to collect garbage for them from the work area) of the subsistence entrepreneurs, we assume that higher levels of awareness of ESO practices that are intangible and are not fully within their control are more developed than the personal tangible ESO practices (e.g. the reuse of materials, resources, and spare parts or the sale of recycled products). The reason is obvious: because the subsistence entrepreneurs operate in the poorest circumstances imaginable, their personal tangible ESO practices may lag behind the intangible awareness and those not fully within their control. This leads to the following hypothesis:

- H2.* Subsistence entrepreneurs in the informal economy of an African LDC demonstrate higher levels of awareness of ESO practices that are intangible and are not fully within their control than personal tangible ESO practices.

Second, we explore the (predicted) association between ESOs and the performance of subsistence entrepreneurs. Based on the previously discussed literature, this association would be positive. Therefore, the following hypothesis is proposed:

- H3.* ESOs have a positive effect on the performance of subsistence entrepreneurs in the informal economy of an African LDC.

The socio-demographics of subsistence entrepreneurs

Age is an important individual characteristic. In African LDCs, older subsistence entrepreneurs have gained more experience by learning on the job and, consequently, perform better than their younger counterparts (Eijdenberg, 2016; Eijdenberg and Borner, 2017; Nichter and Goldmark, 2009). Therefore, the following hypothesis is formulated:

- H4.* Older subsistence entrepreneurs perform better than their younger counterparts in the informal economy of an African LDC.

Gender is another important individual characteristic that influences the performance of subsistence entrepreneurs in African LDCs. Female-owned businesses tend to grow more slowly and to be less successful than male-owned ones. The slower growth rates relate primarily to the sectors in which the female-owned businesses operate – for example, household-based businesses (Liedholm, 2002; Tandrayen-Ragoobur and Kasseeah 2017; Mead and Liedholm, 1998). Hence, the following hypothesis is formulated:

- H5.* Female subsistence entrepreneurs perform worse than their male counterparts in the informal economy of an African LDC.

Concerning the education of subsistence entrepreneurs in African LDCs, some studies suggest that a higher educational level does not automatically lead to better performance (Nichter and Goldmark, 2009). However, in general, the more highly educated entrepreneurs perform better than those who are less educated (Gimeno *et al.*, 1997; Nichter and Goldmark, 2009). Education is, therefore, considered the way out of poverty (Batana, 2013). As a consequence, the following hypothesis is formulated:

- H6.* Better-educated subsistence entrepreneurs perform better than their less-educated counterparts in the informal economy of an African LDC.

Methodology

The context of the study

As pointed out in the Introduction section concerning the LDC criteria, Tanzania is a typical African LDC and provides an ideal basis for this study. Tanzania has a total population of almost 54m. Approximately 67.9 per cent of the people in Tanzania live below the poverty

line, and in 2016, the country's GDP per capita was \$3,100, placing it in the 190th position out of 230 countries (Central Intelligence Agency, 2017). About 12m Tanzanians have barely enough food to survive. These numbers have not changed much in the last decade, despite strong GDP growth of around 7 per cent. Tanzania's GDP growth rate is mainly caused by the success of non-labour-intensive sectors, from which few people benefit (World Bank, 2018). The majority of the Tanzanian private sector enterprises are considered micro enterprises, such as MSEs (Beck *et al.*, 2017; Mnenwa and Maliti, 2009). These MSEs play an important role in reducing poverty and improving livelihoods in LDCs (Donner and Escobari, 2010; Duncombe and Heeks, 2005; McPherson, 1996; Mnenwa and Maliti, 2009).

Three phases have shaped Tanzania's economy. In 1961, Tanzania became independent and pursued the goals of fighting against ignorance, poverty and disease, as well as increasing productivity (Central Intelligence Agency, 2017; Lyatuu *et al.*, 2015). Between 1961 and 1980, national unity (the period of "Ujamaa", or "African Socialism", promoted by President Julius Nyerere; Jerven, 2011) was achieved. This was followed by a period in which the government focused on developing macroeconomic stability (1981–1995), which largely resulted in economic growth without creating new jobs (Lyatuu *et al.*, 2015).

From 1996 to 2012, Tanzania's high-level decision makers promoted further development. Investments in human capital, infrastructure and businesses were made; governmental capacity was extended; foreign investment in the country increased (Musila and Sigué, 2006); and living conditions improved, with the main goal of making Tanzania a middle-income country by 2025 (Lyatuu *et al.*, 2015). Since mid-1990s, Tanzania has largely been transformed into a market economy, switching its focus from agriculture (23 per cent of GDP) to service (48 per cent of GDP) and industry (29 per cent of GDP) (Central Intelligence Agency, 2017).

Data collection

Iringa, the location selected for this study, is situated 267 km south of Dodoma, which is Tanzania's political capital and legislative seat. The reason for this town as the setting for this study is twofold: Iringa connects north and south Tanzania and lies along the Tanzam Highway, which links Dar Es Salaam to Zambia; it, therefore, functions as a hub for long-distance travellers, thereby creating market opportunities for subsistence entrepreneurs; and a workshop (briefly discussed hereafter), which was the point of departure for this study, took place in Iringa. Concerning Iringa, in 2012, the entire Iringa region had a population of 974,000 inhabitants with an annual population growth rate of 1.1 per cent (Tanzania National Bureau of Statistics, 2016b). The town itself has approximately 150,000 inhabitants (Tanzania National Bureau of Statistics, 2016a).

Before the sample of subsistence entrepreneurs was surveyed, the questionnaires were developed in the previously mentioned workshop held in October 2016 at the Iringa Lutheran Centre for the faculty of the University of Iringa (UoI). This workshop can be considered a pre-study, as it was conducted prior to the main data collection. Two authors of this paper led the workshop as instructors, after which they coordinated the collection of the data from the sample of subsistence entrepreneurs. The workshop focussed on capacity building on the development of entrepreneurship curricula and research at the UoI.

During the workshop, sufficient time was dedicated to data collection. Among other topics and assignments, there was an important group discussion with all the participants about the development of suitable survey items to measure age, gender, highest level of education completed, ESOs and the performance of subsistence entrepreneurs in the Iringa context. Additionally, the actual fieldwork – collecting the data – was part of the assignment.

First, the participants were paired and were then asked to think of items of performance and ESOs for several hours. The duos subsequently presented their results to the other participants. After each presentation, the participants were asked to reflect and comment on

each other’s item suggestions. During this round of reflection and comments, consensus was reached about the performance (items related to food, which were called basic performance, as well as those related to others, which were called advanced performance) and ESO items. Concerning performance, the participants agreed framing these items in hindsight (i.e. within a three years’ timeframe from the moment of surveying), therefore, respecting the previous discussion on temporal dimensions of subsistence entrepreneurs. After minor adjustments were made to the proposed items, the instructors combined the items from all the duos into one survey. This final survey is presented in Table I.

The participants simultaneously developed a Kiswahili survey based on the English version. Subsequently, the participants were asked to take the final survey home, make sufficient copies and begin administering them to subsistence entrepreneurs in Iringa. The participants were encouraged to collect at least ten fully completed surveys. The reason for this was twofold. The first reason was that we followed the “random’ walk procedure” which has been applied more often in African LDCs as a common sampling methodology (Frese *et al.*, 2007; p. 1486). The second reason was that by aiming for at least ten fully completed surveys from 15 participants (thus: ideally, 150 fully completed surveys in total), we

Item No.		Scale
<i>Socio-demographic items</i>		
1	Age	Number
2	Gender	0 = male; 1 = female
3	Highest completed level of education	1 = primary school; 2 = secondary school; 3 = other
<i>ESO items</i>		
4	I contribute financially to the services for them to collect garbage from my work area (i.e. intangible awareness and not fully within control)	1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 strongly agree
5	I am aware that my business pollutes the environment (i.e. intangible awareness and not fully within control)	
6	I use old car tyres to create useful products, such as spare parts and shoes (i.e. personal tangible practices)	
7	I reuse materials – for example, plastic bags – within my business (i.e. personal tangible practices)	
8	The resources for the products I sell are made from recycled materials (i.e. personal tangible practices)	
9	I sell recycled products (i.e. personal tangible practices)	
<i>Performance items</i>		
10	Do you have adequate food year round? (i.e. basic performance)	0 = no; 1 = yes
11	Concerning the food that you can buy on a daily basis, how has it changed over the last three years of operation? (i.e. basic performance)	1 = a lot less; 2 = less; 3 = stayed the same; 4 = more; 5; a lot more
12	Over the last three years, have you been able to build a house from this business? (i.e. advanced performance)	0 = no; 1 = yes
13	Over the last three years, have you been able to send your children to private school (for those who don't have children, could you have afforded it if you did?) (i.e. advanced performance)	
14	Over the last three years, have you managed to obtain healthcare for your household? (i.e. advanced performance)	1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree

Table I.
The final survey

ensured to have a solid basis for statistical analyses, following the rule of thumb of $N > 50 + 8m$, where m represents the number of independent variables in the study (Tabachnick and Fidell, 2007). The participants spread out to various locations in and outside Iringa town to ensure that the same subsistence entrepreneurs would not be surveyed more than once. Finally, they returned with their completed, paper-printed surveys.

The participants were urged to survey the informal food vendors, as collectively concluded in the pre-study as the “typical type of subsistence entrepreneurs in the Iringa-region”. Yet, these subsistence entrepreneurs are seen in many cities in LDCs (Asiedu and Agyei-Mensah, 2008). These food vendors can be found on the street and/or they operate out of small, self-built restaurants (Asiedu and Agyei-Mensah, 2008; Eijdenberg, 2016). In LDCs, street vending is important because for many less-educated people, it is the only available employment that enables them to make a living (Asiedu and Agyei-Mensah, 2008; Bureau and Fendt, 2011; Iyenda, 2001; Lyons *et al.*, 2013; Mfaume and Leonard, 2004).

The total number of completed surveys was 140, making it a response rate of 93.3 per cent on the basis of the aimed 150 fully completed surveys. The sample of subsistence entrepreneurs comprised 84 women and 56 men. The minimum age of the respondents was 15 years, the maximum age was 53 years and the average age was 33.6 years. The respondents’ level of education was low, as 53.6 per cent reported that primary school was the highest level of education that they had completed, 36.4 per cent indicated that secondary school was their highest level of completed education and 10.0 per cent reported that they had completed another type of education.

The aim of the additional analyses is to test the hypotheses. Therefore, the following steps are taken in the analyses: the scores of the performance and ESO items are computed; *t*-tests are conducted on the performance and ESO items; a correlation analysis on all relevant items is conducted; and the ultimate regression analyses were carried out. For the regression analyses, Table II items that are numbered 1–9 are considered as “the independent items”, and the ones numbered 10–14 are considered as “the dependent items”.

Results

The scores for performance and the ESOs

In this section, the item Nos from the first column of Table I are used and, therefore, correspond to the item descriptions in the second column of Table I.

First, the scores for performance and the ESO items are computed. Table II presents the results of the performance items that have a continuous scale (i.e. numbered 11 and 14). Table III presents the results of the performance items that have a dichotomous scale (i.e. numbered 10, 12 and 13).

From Tables II and III, it can be concluded that, in general, the performance of the subsistence entrepreneurs over the last three years has improved: the majority of the subsistence entrepreneurs responded “agree”, “strongly agree” or “yes” to the items indicating improvement of their performance conditions.

Table IV presents the results of the ESO items (i.e. numbered 4–9).

Item No.	11	Item No.	14
A lot less, percentage	2.9	Strongly disagree, percentage	6.4
A little less, percentage	3.5	Disagree, percentage	15.0
Stayed the same, percentage	9.3	Neutral, percentage	12.1
A little more, percentage	34.	Agree, percentage	48.6
A lot more, percentage	50.0	Strongly agree, percentage	17.9
Total, percentage	100	Total, percentage	100

Table II.
The scores of the
performance items on
the continuous scale

From Table IV, it can be concluded that the subsistence entrepreneurs have low levels of ESO. Generally, 49.8 per cent reported that they (strongly) disagreed with the items indicating ESO.

Next, to test *H1* on the basis of significant levels, a paired sample *t*-test is conducted on the performance items. Concerning the performance items, a distinction is made between basic and advanced performance, as they were suggested in the workshop. Each basic performance item is paired with another advanced performance item (“Item Nos”). Table V shows the results of this paired sample *t*-test.

Only for the analyses’ purpose of Table V, five-point Likert-type items “Concerning the food that you can buy on a daily basis, how has it changed over the last three years of operation? (i.e. basic performance)” and “Over the last three years, have you managed to obtain healthcare for your household? (i.e. advanced performance)” were recoded from 1 to 5 into 1 = 0.00; 2 = 0.25; 3 = 0.50; 4 = 0.75; and 5 = 1.00. By recoding this way, the five-point Likert-type scale comes closest to the dichotomous scale of the other items. Hence, reasonable and reliable comparisons between the different scaled items can be made. For all further analyses in the remainder of the paper, the original scales of the items were used.

From Table V, it can be concluded that there is a clear distinction between the basic and advanced performance items: the mean difference between each pair is significant except for “Concerning the food that you can buy on a daily basis, how has it changed over the last three years of operation? (i.e. basic performance)” and “Over the last three years, have you managed to obtain healthcare for your household? (i.e. advanced performance)”. Therefore, *H1* is greatly supported.

Table III.
The scores for the performance items on the dichotomous scale

Item No.	10	12	13
Mode	1	0	1
No, percentage	27.1	55.7	40.0
Yes, percentage	72.9	44.3	60.0
Total, percentage	100	100	100

Table IV.
The scores for the ESO items

Item No.	4	5	6	7	8	9	Total
Strongly disagree, percentage	17.1	15.0	46.4	34.3	43.6	48.6	34.2
Disagree, percentage	4.3	12.1	17.1	17.9	23.6	18.6	15.6
Neutral, percentage	8.6	10.0	15.0	11.4	10.7	12.1	11.3
Agree, percentage	25.7	20.0	10.7	18.6	8.6	10.7	15.7
Strongly agree, percentage	44.3	42.9	10.7	17.8	13.5	10.0	23.2
Total, percentage	100	100	100	100	100	100	

Table V.
Paired sample *t*-test results: basic performance – advanced performance

Item Nos	<i>M</i>	<i>SD</i>	<i>t</i> (<i>df</i>)	<i>p</i>
10–12	0.73–0.44	0.45 –0.50	5.40 (139)	0.00
10–13	0.73–0.60	0.45–0.49	2.45 (139)	0.02
10–14	0.73–0.82	0.45–0.24	–2.04 (139)	0.04
11–12	0.64–0.44	0.28–0.50	3.94 (139)	0.00
11–13	0.64–0.60	0.28–0.49	0.87 (139)	0.39
11–14	0.64–0.82	0.28–0.24	–5.95 (139)	0.00

Notes: *M*, mean; ; *SD*, standard deviation; *t*(*df*), *t*-statistic with degrees of freedom; *p*, significance value

Subsequently, to test *H2*, a similar methodological approach is performed as with *H1* on the exceptional condition that during the *t*-test, the items were rank-ordered on descending means. The reason is that the percentages from Table IV reflect the scores of the means and the difference between the higher-scoring and lower-scoring items. In this way, the *t*-test results show a distinction between the items that matter more and less to the respondents. Table VI shows the results for the paired *t*-test of the ESO items.

Based on Table VI, a rank order with the significance values of the ESOs can be distilled. The items related to intangible awareness and not fully within their control (i.e. “I am aware that my business pollutes the environment” and “I contribute financially to the services for them to collect garbage from my work area”) are strongly significant and are ranked higher than those related to the personal tangible ESO practices (e.g. “I use old car tyres to create useful products, such as spare parts and shoes”, “I reuse materials – for example plastic bags – within my business”, “The resources for the products I sell are made from recycled materials”, and “I sell recycled products”). Consequently, *H2* is fully supported.

The correlation analysis

Table VII shows the results of the correlation analysis: these are the necessary steps to the regression analyses. The Nos correspond with those in the previous tables, starting with Table I. From Table VII, it can be concluded that imprecise data through multicollinearity can be excluded, as no coefficients (*r*-values) are extremely high ($r > 0.90$) (Hair *et al.*, 2010).

Regression models

Excluding multicollinearity in the correlation analysis paved the way for the regression analyses. Besides the socio-demographic items (i.e. items numbered 1, 2 and 3), the ESO items (i.e. items numbered 4–9) are each treated as separate, independent items – that is, as the predictors for the performance items. The reason for doing so is to observe how each ESO item “behaves” independently within one model together with the other independent items and to control for the nuanced, detached effects as independent predictors of performance, instead of a generic ESO effect when all items are combined into one independent variable.

Two different regression methods are run on the data: a logistic and a multiple regression analysis. The logistic regression applied to the performance items that contained a dichotomous scale (i.e. items numbered 10, 12, 13), and the multiple regression analysis applied to the performance items that contained a continuous scale (i.e. items numbered 11 and 14).

The results are presented in Table VIII, which is structured as follows: first, the χ^2 with the degrees of freedom (df) and the sample size (*N*), as well as the *F*-test with the df, are presented. Second, the significance values (*p*) are shown. Third, the Cox and Snell R^2 , the Nagelkerke R^2 and the adjusted R^2 are presented. Finally, the odds ratio (Exp(*B*)) is given for

Item No.	4	5	7	8	6	9
4	–					
5	0.75 (139)**	–				
7	7.03 (139)**	6.00 (139)**	–			
8	10.18 (139)**	7.94 (139)**	3.39 (139)**	–		
6	11.28 (139)**	9.23 (139)**	3.38 (139)**	0.24 (139)	–	
9	11.65 (139)**	8.96 (139)**	3.93 (139)**	1.06(139)	0.54 (139)	–

Notes: The items are rank-ordered on descending means: *t*(df), *t*-statistic with degrees of freedom.
 ***t*-Statistic significant at the 0.01 level

Table VI.
Paired sample *t*-test
results of the ESO
items

Table VII.
Correlation table

No.	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	33.60	7.93	1													
2	0.60	0.49	0.06	1												
3	1.56	0.67	-0.17*	-0.16	1											
4	3.76	1.48	-0.01	-0.12	0.20*	1										
5	3.64	1.50	0.08	0.16	-0.02	0.17*	1									
6	2.22	1.40	-0.11	-0.06	0.11	0.38**	0.22**	1								
7	2.68	1.54	-0.10	-0.19*	0.15	0.28**	0.23**	0.41**	1							
8	2.25	1.44	-0.12	-0.07	0.12	0.28**	0.01	0.49**	0.50**	1						
9	2.15	1.39	-0.04	-0.12	0.15	0.23**	0.08	0.38**	0.41**	0.69**	1					
10	.73	0.45	0.02	0.16	-0.01	-0.08	0.09	-0.16	-0.09	-0.29**	-0.15	1				
11	3.56	1.14	-0.002	0.12	-0.01	-0.11	0.24**	-0.12	-0.07	-0.14	-0.05	0.04	1			
12	.44	0.50	0.28**	0.05	-0.04	-0.02	0.04	0.003	-0.12	-0.10	-0.09	0.12	-0.09	1		
13	.60	0.49	0.38**	0.11	0.01	-0.06	0.01	-0.14	-0.24**	-0.34**	-0.29**	0.13	0.03	0.38**	1	
14	4.25	0.97	0.09	0.03	-0.02	-0.16	0.03	-0.14	-0.09	-0.08	-0.06	0.09	0.17*	-0.02	0.21*	1

Notes: M, mean; SD, standard deviation; *r*-values, Pearson's correlation coefficients. *, **Significant at the 0.05 and 0.01 levels, respectively

Table VIII.

The regression models
of the performance
items

Predictor	Item No. 10	Item No. 12	Item No. 13	Predictor	Item No. 11	Item No. 14
$\chi^2(df, N)$	16.97(9, 140)	14.86(9, 140)	41.53(9, 140)	$F(df)$	1.83(9, 139)	0.69(9, 139)
p	0.049	0.10	0.00	p	0.07	0.72
Cox and Snell R^2	0.11	0.10	0.26	Adjusted R^2	0.05	-0.02
Nagelkerke R^2	0.17	0.14	0.35			
Exp(B) Item No. 1	0.99	1.08**	1.13**	β Item No. 1	-0.05	0.08
Exp(B) Item No. 2	2.17	1.04	1.44	β Item No. 2	0.07	-0.01
Exp(B) Item No. 3	1.12	1.09	1.71	β Item No. 3	0.04	0.04
Exp(B) Item No. 4	0.99	0.97	1.05	β Item No. 4	-0.10	-0.14
Exp(B) Item No. 5	1.11	1.05	0.97	β Item No. 5	0.27**	0.09
Exp(B) Item No. 6	0.88	1.19	1.13	β Item No. 6	-0.11	-0.09
Exp(B) Item No. 7	1.19	0.85	0.87	β Item No. 7	-0.04	-0.04
Exp(B) Item No. 8	0.56**	0.99	0.71	β Item No. 8	-0.12	0.03
Exp(B) Item No. 9	1.15	0.90	0.76	β Item No. 9	0.10	-0.01

Notes: χ^2 (df, n), χ^2 with degrees of freedom and sample size; $F(df)$, F -test with degrees of freedom; p , model significance value; Cox and Snell R^2 ; Nagelkerke R^2 ; Adjusted R^2 ; odds ratio: Exp(B); Beta coefficient (β).
*, **Significant at 0.05 and 0.01 level, respectively (two-tailed)

the logistic regressions, and the β coefficients are presented for the multiple regressions for all the independent items.

From Table VIII, the following can be concluded: concerning ESOs, there are two significant coefficients out of the 30 possibilities although one of the two belongs to an insignificant model ($p = 0.07$). Thus, $H3$ is greatly rejected. Concerning the socio-demographics, $H4$ is greatly rejected: age is only positively significant for “Over the last three years, have you been able to build a house from this business? (i.e. advanced performance)” and “Over the last three years, have you been able to send your children to private school (for those who do not have children, could you have afforded it if you did?) (i.e. advanced performance)”, although the regression model on the former performance item has no model significance ($p = 0.10$). Finally, there are no significant effects of gender and highest completed level of education on the performance items. Therefore, $H5$ and $H6$ are fully rejected.

Discussion

The aim of this paper was to answer $RQ1$ and $RQ2$. Based on a literature review, six hypotheses were developed. Following these hypotheses, multiple analyses were conducted on 140 subsistence entrepreneurs in Tanzania, and these analyses provided the answers to the RQs.

The answer to $RQ1$ is as follows: over the last three years, the performance of the subsistence entrepreneurs in an African LDC has improved, and a significant distinction can be found between basic and advanced performance. This is in line with the expectations based on the literature that is reflected in the greatly supported $H1$. Furthermore, the subsistence entrepreneurs in an African LDC showed significantly high levels of the awareness of ESO practices that are intangible and are not fully within their control (i.e. “I am aware that my business pollutes the environment” and “I contribute financially for the services to collect garbage from my work area”), compared to those related to the personal tangible ESO practices (e.g. the reuse of materials, resources, and spare parts or the sale of recycled products). This finding confirms the support for $H2$. The answer to $RQ2$ is as follows: ESOs have hardly any effect on the performance of subsistence entrepreneurs in an African LDC.

A possible reason for the rejection of $H3$ is that the awareness of ESO practices that are intangible and are not fully within their control dominate the personal tangible ESO practices. The intangible awareness and not fully within control are less visible and need to

be turned into personal tangible practices before they directly impact performance. Therefore, the expected predicted association may be absent. Another reason may be that the ESOs and performance have been and continue to be disconnected in the informal economy. While it was suggested that the performance proxies should be used based on the literature and the suggestions in the pre-study, proxies with considerably different conceptual meanings might be more applicable.

The reason that *H4* is rejected may be that age does not matter at the subsistence level. In circumstances of extreme poverty, age may not coincide with gained experience: the average age of the subsistence entrepreneurs is relatively low (almost 34 years old), thereby limiting their years of work experience. Another possibility is that there is not much to learn from subsistence businesses: being older and having extensive experience in multiple previous businesses do not necessarily equate to having more knowledge and, consequently, improving one's performance.

Similar reasons for the rejection of *H4* may also apply to the rejections of *H5* and *H6*. For *H5*, gender may not affect performance at the subsistence level. It is also possible that because of the majority-female sample (84 women vs 56 men), variance is minimised, and consequently, the men are outweighed by the women. Concerning *H6*, the education levels of the respondents were very low (53.6 per cent completed primary school only, while for 36.4 per cent, secondary school was the highest level of education completed). Although their performance may have improved over the last three years, the respondents remained at the subsistence level and were, therefore, neither able to benefit from advanced education nor become more capable with regard to their business practices. This may imply the absence of any positive impact on their performance.

Conclusion

The answers to the RQs converge and make a number of contributions to the literature. They also have practical implications and enable the identification of research limitations and recommendations for future scholarly work.

In general, this study is a new stone that fills "the Great Unknown" (Eijdenberg and Borner, 2017, p. 17) – that is, the relatively unexplored informal economy of African LDCs. This sector has been largely overlooked, while traditionally, considerable attention has been paid to the sustainability practices of larger organisations in developing countries (e.g. Dobers and Halme, 2009; Kolk and Lenfant, 2013; Ite, 2004). By making the informal economy of an African LDC the point of departure, this study adds to the existing literature on performance and ESOs in western countries (e.g. Russo and Fouts, 1997; Simpson and Kohers, 2002; Vitezic, 2011) and how these are developed in other unique, non-western contexts. This study also reveals the importance of performance and ESOs in contexts off the beaten track, and, therefore, contributes to the calls for research that enables a better understanding of entrepreneurial activity in such a context (e.g. Eijdenberg, 2016; De Castro *et al.*, 2008; Khavul *et al.*, 2009; Siqueira and Bruton, 2010; Webb *et al.*, 2009). As a novel finding in light of the RBV – as unique resources potentially leading to a competitive advantage, this study shows that while subsistence entrepreneurs may possess and skilfully employ a certain ESO, this can be explained in two ways: intangible and not fully within control and personal tangible practices. But, most importantly, these two forms of ESO do not lead to improved performance. More specifically regarding the interconnectedness of performance and ESOs in developing countries, our study differs from previous research (e.g. Leonidou *et al.*, 2016; Roxas *et al.*, 2017; Tang and Tang 2012) on the characteristics of the unit of analysis: entrepreneurs at the subsistence level in the informal economy. Apparently, the size of the business, its degree of formalisation and the economic conditions under which it operates can make the ultimate difference in whether performance is affected.

This study yields a number of practical implications. Regarding performance, one possible implication is that practitioners (e.g. trainers, consultants, and policymakers) should focus on how the performance proxies in this study can be developed to the next stage – that is, more advanced performance proxies, such as luxury consumable goods. In this way, the subsistence entrepreneurs can possibly escape from their circumstances of extreme poverty, in which basic performance dominates. Regarding ESOs, practitioners should focus on the process by which intangible awareness and not fully within control can be turned into personal, tangible, sustainable practices. This is because such a focus can most likely have an impact on entrepreneurs' performance and, consequently, enable them to operate above the subsistence level. An example of this process might be training that raises awareness of environmental pollution, as well as practices such as reusing materials (e.g. plastic bags) within the business.

Finally, this study includes recommendations for future scholarly work and outlines its research limitations. First, the previously discussed hypotheses may serve as a point of departure for other scholars. In particular, the rejected hypotheses should stimulate curiosity within the research community and encourage further study. A number of possible reasons for rejection were considered in the Discussion section; however, it is up to future researchers to follow up on this speculation. Second, other researchers are encouraged to study subsistence entrepreneurs in the informal economy of African LDCs by overcoming this study's limitations, such as its sample size, sampling methodology, research design and the time and location of the data collection. A final important note concerns the temporal dimension: this study is limited to subsistence entrepreneurs' performance measured over the last three years. Therefore, besides the possible recall bias of memorising what the performance was like one to three years ago, those who have been able to move from subsistence/informal level to advanced stages of performance have been ignored. For these advanced entrepreneurs in LDC contexts, ESOs may play a different role.

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Note

1. In this paper, the term "western" refers to the developed countries, such as Japan, the USA, or countries in western Europe. As opposed to "western", "non-western" refers to the underdeveloped countries, such as Tanzania and other LDCs on the African continent.

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Corresponding author

Emiel L. Eijdenberg can be contacted at: eleijdenberg@uni-hohenheim.de