



Innovation activities of informal micro-enterprises in Gauteng, South Africa: A systematic review of the literature

Lavhelesani Mulibana & Ravinder Rena

To cite this article: Lavhelesani Mulibana & Ravinder Rena (2021) Innovation activities of informal micro-enterprises in Gauteng, South Africa: A systematic review of the literature, African Journal of Science, Technology, Innovation and Development, 13:4, 425-435, DOI: [10.1080/20421338.2020.1818921](https://doi.org/10.1080/20421338.2020.1818921)

To link to this article: <https://doi.org/10.1080/20421338.2020.1818921>



Published online: 17 Dec 2020.



[Submit your article to this journal](#)



Article views: 40



[View related articles](#)



[View Crossmark data](#)

Innovation activities of informal micro-enterprises in Gauteng, South Africa: A systematic review of the literature

Lavhelesani Mulibana * and Ravinder Rena 

North-West University Business School, Faculty of Economic and Management Sciences, North-West University, Republic of South Africa

*Corresponding author. Email: mulibanalav@gmail.com

The literature revealed that 70–80% of South African small businesses, including informal micro-enterprises, fail in the first year of their existence. Innovation has been recognized as a catalyst that can enhance informal micro-enterprises' probabilities to survive and transform them from survivalists to sustainable businesses that grow the economy and create jobs. As far as it can be reasonably determined, there has not been a systematic review of the literature on innovation activities of informal micro-enterprises in the Gauteng province, South Africa. This study aims to present a systematic review of the literature, as well as research gaps identified in the literature, and future research opportunities. This paper thus systematically reviews the literature on innovation activities of informal micro-enterprises in the Gauteng province. The study revealed that the innovation capacity of informal micro-enterprises is severely hampered by innovation tradition and social tax. Subsequently, informal micro-enterprises engage less in innovation activity and those that do innovate often engage in incremental rather than radical innovation. Radical innovations are more crucial than incremental innovations. Thus, there is a need for researchers and government organizations to establish initiatives that can aid the informal micro-enterprises to engage more in radical innovation.

Keywords: innovation activities, literature review, informal micro-enterprises, Gauteng province, South Africa

Introduction

Small, medium and micro-sized enterprises (SMMEs) are classified variously in different countries. In the South African context, the National Small Enterprises Act of 1996, read with the revised Schedule 1 of the National Definition of Small Enterprise in South Africa 2019, refers to a small enterprise as an incorporated entity, including cooperative enterprises and non-governmental organizations, managed by one or more owners, which operates in any sector or sub-sector of the economy (The Republic of South Africa 1996). Among others, micro-enterprises are classified as having on average up to 10 employees and an annual turnover of up to R10 million (The Republic of South Africa 1996).

SMMEs are major contributors to economic growth, job creation and poverty alleviation in most countries (TIPS 2002; Marnewick 2014; De Beer and Armstrong 2015). In countries like Japan, China, the United States of America (USA), and countries in the European Union, SMMEs contribute more than 60% to Gross Domestic Product (GDP), whereas South African SMMEs contribute 36% to national GDP and create 40% of the jobs, the lowest among the BRICS economies (Kumah and Omilola 2014; GEM 2017; Yu 2017). In terms of the National Development Plan, South African SMMEs are expected to create 90% of all new jobs by 2030 (The Presidency 2012). Thus, major improvements are anticipated in the SMME sector.

In South Africa and other developing countries, small businesses, in particular micro-enterprises, operate in both the informal and formal sectors (Mendi and Mudida 2018). This study focuses on micro-enterprises that operate in the informal sector. Mendi and Mudida (2018) assert that a noticeable characteristic of most African countries, including South Africa, Kenya,

Ghana, Nigeria and so forth, is the existence of a huge informal sector. Thus, the informal sector is important.

In 2015, Statistics South Africa reported that there were 2,251,821 SMMEs in South Africa. Of the 2,251,821 SMMEs, 667,433 are formal whereas 1,497,860 are informal. The remaining 86,528 SMMEs were classified as other. Of the 1,497,860 informal firms, 465,100 are in the Gauteng province. This represents 31% of informal firms in South Africa (SEDA 2016). Although South Africa is not short of small businesses, SEDA (2016) and Asikhia and Van Rensburg (2015) estimated that 70 to 80% of all new small businesses fail in the first year and those that survive the first year rarely exist for more than five years (Rogerson 2000; Nemaenzhe 2010; DSBD 2018). On the contrary in the USA, at least 70% of small businesses survive the first two years and 55% of small businesses fail within the fifth year (Remund, Ortiz, and Gehrke 2017).

Innovation has been recognized as a catalyst that increases small businesses' probabilities to survive. Innovating small businesses are likely to grow faster than those that do not innovate (Links, Hart, and Jacobs 2014; Mendi and Mudida 2018). Furthermore, small businesses can use innovation to outperform competitors, stay relevant, increase their export probabilities, grow into large enterprises and become a source of highly technical, high-paying jobs in the future (Ivers 2013; Asikhia and Van Rensburg 2015; Gkypali, Filiou, and Tsekouras 2017; Smit 2017).

While innovation has been widely recognized as a major contributing factor towards successful firms' success, little is known about the innovation activities of informal micro-enterprises. As far as it can be reasonably determined, there has not been a systematic review of the

literature on innovation activities of informal micro-enterprises in the townships of the Gauteng province, South Africa. Thus, this is a theoretical or conceptual study that systematically reviews the literature on innovation activities of informal micro-enterprises in the townships of the Gauteng province, South Africa.

The identified research problem led to the formulation of the following main research question: What research gaps currently exist and what insights can be shared in relation to innovation activities of informal micro-enterprises in the townships of the Gauteng province? To address this question, the following sub-questions have to be answered: What does the existing literature reveal about innovation activities of informal micro-enterprises? What are the research gaps? and what are the insights that can be shared?

This is a theoretical or conceptual study. The study makes the following contributions:

- (a) It provides a systematic review of the literature on innovation activities of informal micro-enterprises based on studies published from 1987 to 2019 in major databases.
- (b) It provides a qualitative analysis of innovation activities of informal micro-enterprises, including the identification of research gaps and suggestions for future research in this field of knowledge.
- (c) It provides insights relating to innovation activities of informal micro-enterprises in the townships of Gauteng province, South Africa.

This paper is divided into six sections, this section being the introduction. The sections that follow are: Section (2) presents the literature review; Section (3) presents the methodology; Section (4) presents the findings and discussion; Section (5) presents the gaps and opportunities for future research; and section (6) presents the conclusion.

Literature review

Innovation activity

Innovation is a systematic process that involves creativity, commercialization, and diffusion of new products or services; introduction of new or improved processes; introduction and implementation of new or improved marketing strategies; and changes to the organizational structure (Ivers 2013; Smith 2015). A complete innovation process can be described as the conception of a new idea, and the conversion of that idea into a product/service that is sold in the market and consumed by customers.

Innovations can either be radical or incremental. Radical innovations are new to the world, whereas incremental innovations are new to the firm but not new to the customer. Incremental innovations often relate to improvements that are made to existing products, processes, services, the purchasing of a new machine or technology and so forth (Booyens, Molotja, and Phiri 2012). Among others, an example of radical innovation is the introduction of the first commercialized light bulb by Thomas Edison and an example of incremental innovation

is the introduction of commercialized Mercedes Benz X Class pick up truck.

Jugend et al. (2018) posit that radical and incremental innovation activities require distinct management practices, capabilities, and organizational components. Firms that often introduce radical innovations extensively invest in innovation and practice open innovation to some extent. Similarly, Kahn (2018) considers radical innovation to be very challenging, may require special resources and it is riskier than incremental innovation. Nonetheless, incremental innovation, alongside radical innovation balances the innovation effort by allowing small wins in pursuit of big wins. This suggests that firms should engage in both radical and incremental innovation. Radical and incremental innovation can occur as a result of either closed or open innovation processes.

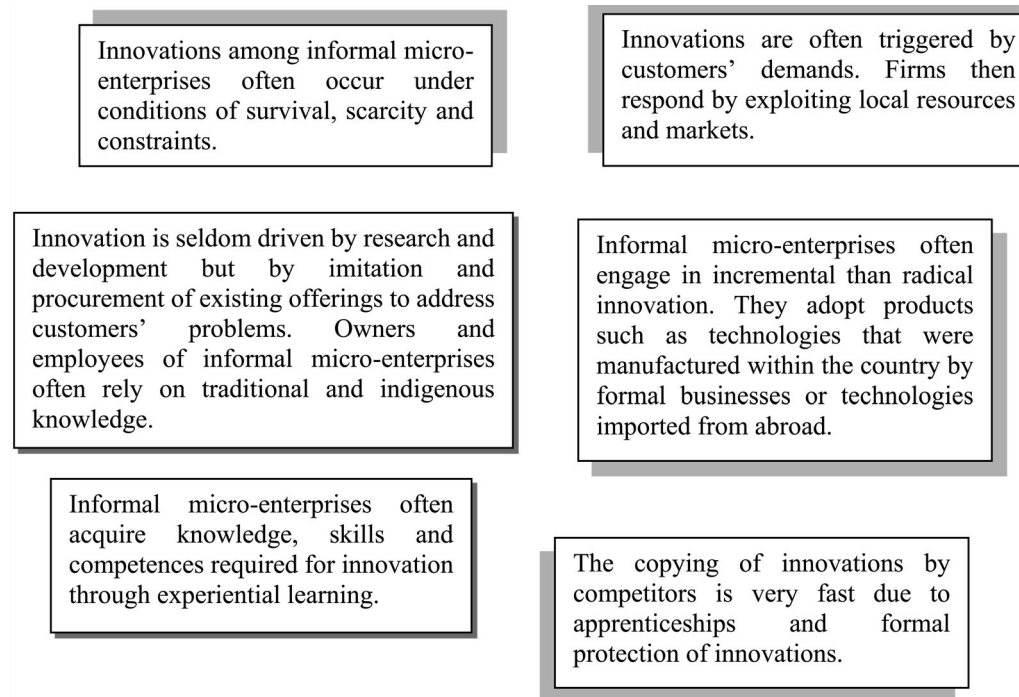
De Beer and Armstrong (2015) aver that radical innovations are primarily found in developed countries and are based on extensive research and development. The authors further argued that, in developing countries, innovations are primarily new to the market or new to the firm (incremental innovations). This argument is questionable as there has been evidence of radical innovations that occurred in developing countries. As pointed out by Mowatt (2018), the first heart transplant was performed in South Africa, and South Africa was also the first country in the world to produce oil from coal. Nonetheless, it is imperative to acknowledge that, if the developing countries' innovations are to be quantified, they may not approximate those of developed countries.

Mendi and Mudida (2018) explained that innovation is a catalyst that may transform developing informal micro-enterprises into formal firms. The survival of informal micro-enterprises depends on their ability to innovate. Similarly, Links, Hart, and Jacobs (2014) explained that the survival of most firms in the informal sector is based on their ability to quickly respond to the demands for goods and services from their clients and the environment. The ability to offer a product or a service that directly addresses customers' needs, combined with the ability to adapt to any changing conditions, often drives innovation activities in the informal micro-enterprises. Although the abilities of informal micro-enterprises to engage in innovation activities are hampered by several innovation constraints, the literature revealed that some innovations do take place in the informal sector. Figure 1 depicts the characteristics of informal micro-enterprises' innovations.

The informal sector and its schools of thought

Links, Hart, and Jacobs (2014) posit that the informal sector is home to almost half of the world's population. There is no widely accepted definition of the informal sector and its activities. Nonetheless, WIPO (2013) conceptualized the informal sector as economic activities that take place in unincorporated entities. These entities and their employees are often unregistered.

Chimucheka (2013) argued that owners of informal micro-enterprises often do not have knowledge, skills, and competences required to run a business, they are unlicensed and subsequently, do not comply with the relevant



Source: De Beer and Armstrong 2015; Links, Hart and Jacobs 2014; Fu, Mohnen and Zanello 2018.

Figure 1: Characteristics of informal micro-enterprises' innovations.

legislative framework. Similarly, Fu, Mohnen, and Zanello (2018) suggested that informal micro-enterprises incline to informality to avoid taxation and controls from the authorities. The authors further argued that these firms are operated by less educated entrepreneurs and due to this their productivity is very low. Examples of such businesses are spaza shops, minibus taxis, household industries, and street vendors.

Links, Hart, and Jacobs (2014) explained that there are several schools of thought pertaining to the informal sector. The first is the dualist school, which is of the view that the informal sector is a transitional sector that temporarily provides employment and income for the poor, especially those who cannot get employment in the formal sector. The second is the structuralist school, which is of the view that the informal sector is subordinate to the formal sector. In other words, informal firms that often provide services for large enterprises in the formal sector serve to reduce input and labour costs and thus increase the competitiveness of large capital intensive firms. This school emerged due to the realization of a need for cooperation between the formal and informal sectors to address common socio-economic problems (Links, Hart, and Jacobs 2014).

The third school is the legalist school, which is of the view that the informal sector came into existence because some firms choose to operate informally, thereby avoiding the legal requirements imposed on the formal sector by governments. Accordingly, the informal sector is not interim but permanent and it is a substantial characteristic of the contemporary capitalist economy (Links, Hart, and Jacobs 2014; De Beer and Armstrong 2015).

Firms that operate in the informal sector have been perceived with negativity. Nonetheless, these firms have potential to transform into viable formal businesses and they substantially contribute to economic growth, job creation, and income generation among the less skilled members of the society, such as female heads of households, disabled people and rural-based families (De Beer and Armstrong 2015). Through their engagement in informal businesses, these people can survive during less favourable economic conditions, when formal sector jobs are in short supply and when social security systems are inadequate. De Beer and Armstrong (2015) posit that without the informal sector, unemployment rates in South Africa would rise to abnormal levels.

Similarly, Charman (2016) maintained that the informal sector, in particular, the township economy provides opportunities to obtain skills, on the job experience and social networks for a huge proportion of the South African population. Globally, accurately capturing the size and economic impact of the informal sector has been deemed problematic due to its native nature. It is however estimated that the weighted average size of the informal sector as a percentage of the GDP in the period 1999–2007 in Africa was around 40% and made up to 80% of non-agricultural employment (Fu, Mohnen, and Zanello 2018). In the South African context, it is estimated that South African informal micro-enterprises together with other formal small businesses contribute 36% to national GDP (TIPS 2002; GEM 2017; Yu 2017) while creating 40% of the jobs (Kumah and Omilola 2014).

Existing innovation theories

Zemplerova and Hromadkova (2012) explained that there are two major theories of innovation that focus on the relationship between market structure, firm size, and innovation. The first is the Schumpeterian theory, which holds the belief that large firms tend to be more innovative due to their financial resilience, and ultimately become more efficient and better-performing firms than small firms. The second is Arrow's (1962) theory, which hypothesized, on the other hand, that small firms are more innovative than large firms, as small firms are in a race to increase their market share.

Similar to Arrow's (1962) theory, this paper argues that small firms are more innovative than large firms as large firms get too comfortable and innovate less. They tend to take their market share for granted and, behold, before they know it, small firms have displaced them. Examples of large firms that got too comfortable and declined in South Africa are Juta Publishers, which lost its market share to emerging publishers and Eskom, which is destined to lose its market share to independent power producers.

Studies conducted by Acs and Audretsch (1987, 1988) revealed that large firms proved to be more innovative than small firms in certain industries. On the other hand, small firms proved to be more innovative in highly innovative industries. Wennekers et al. (2005), however, stated that studies conducted in the decades preceding 2005 revealed that the innovative advantage has moved from large firms to small firms. Furthermore, Wagner and Hansen (2005) aver that firms of different magnitude require different forms of innovation.

In light of the above, it can be argued that there are contrary theories relating to the innovation activities of small firms and large firms. When contrary theories exist, future related studies become necessary as they can clarify the differences in the existing theories.

Methodology

This is a theoretical conceptual study and it provides a systematic review of the literature on innovation activities of informal micro-enterprises to present what the existing literature reveals about innovation activities of informal micro-enterprises, share some insights and present identified gaps and future research opportunities. Denyer and Tranfield (2009) assert that systematic review methodology enables researchers to locate relevant existing studies, select and evaluate contributions, analyse and synthesize data, and report the evidence in such a way that allows reasonably clear conclusions to be reached about what is and is not known.

In accordance with the principles of systematic review methodology, this study followed the following steps:

- Step 1: Identification of key terms and location of studies;
- Step 2: Selection and evaluation of studies;
- Step 3: Analysis and synthesis; and
- Step 4: Reporting and use of research results.

Step 1: Identification of key terms and location of studies

Tranfield, Denyer, and Smart (2003) and Briner and Denyer (2012) explained that a systematic literature review starts with the identification of keywords, which are used as search terms. This is followed by the development of a search protocol, which ensures that the review is systematic, transparent and replicable. The research question(s) forms the basis on which search terms are identified and search protocol is determined.

In this study, these key terms: township, informal micro-enterprises, innovation activities, innovation orientation, Gauteng province, South Africa, innovation framework and model were used to search for relevant books, journals, theses, dissertations and articles on several databases (i.e. ScienceDirect, Sabinet, EBSCO, SA e-Publications, and SA Insight).

The key search terms were extracted from the research problem and question. Moreover, terms such as innovation orientation and innovation framework/model were added as search terms. This was done to comprehensively understand the innovation activities of informal micro-enterprises. Their innovation orientation had to be understood and the study also had to determine if informal micro-enterprises in the townships make use of existing innovation frameworks/models as a guide to engage in innovation activities or for any other purpose.

The identified databases were selected for search purposes because they could produce search results of studies on Small, Medium and Micro-sized enterprises' innovation activities conducted in South Africa and other developing countries. The search was conducted for studies published from 1987 to 2019, which is a period of 32 years. The study went as far back as 1987 to establish an understanding of the history of innovation and informal micro-enterprises, as it is the past that makes us understand the present. Furthermore, the history of innovation and informal micro-enterprises enabled us to understand the contemporary ongoing debates relating to this field. While the search was conducted from as far back as 1987, most of the studies that met the inclusion criteria were published in the past 10 years.

Step 2: Selection and evaluation of studies

Counsell (1997) and Denyer and Tranfield (2009) aver that documents identified during the search should be assessed to determine if they relate to or answer the research question. The researcher must indicate the basis on which documents were included or excluded from the study. Accordingly, the identified documents were assessed for relevance and relevant documents were selected. This paper presents the document inclusion and exclusion criteria below.

- (a) **Inclusion criteria:** There were selected studies that present and describe innovation activities of informal micro-enterprises in the Gauteng province, South Africa. Due to the limited availability of studies on innovation activities of informal micro-enterprises in the Gauteng province, studies that present and describe innovation activities of informal micro-

enterprises in other locations were also selected for the review. Moreover, to some extent, some studies that present and describe innovation activities of small businesses irrespective of whether they are formal or informal were selected.

- (b) **Exclusion criteria:** There were excluded studies that did not present and describe innovation activities of informal micro-enterprises in the Gauteng province, South Africa. There were also excluded studies that did not present and describe innovation activities of informal micro-enterprises and small businesses.

As depicted in Figure 2, 2774 studies were found on the identified databases. These include articles, theses, books, reports, and other publications. This statement was used for the first search: Innovation activities of informal micro-enterprises in South Africa. Since there were thousands of results, the search was filtered by adding these two words, Gauteng townships. After the filter, 44 studies were selected for review as indicated in Figure 3.

Step 3: Analysis and synthesis

The analysis aims to scrutinize individual studies and describe how each relates to the other. On the other hand, synthesis aims to make associations among the identified integral parts of individual studies (Counsell 1997). The selected studies were analysed qualitatively for relationships, and similar information was synthesized under common topics. The qualitative analysis involved scrutiny of the contents of individual studies and comparison with the contents of other studies to determine themes.

The findings were categorized based on themes extracted from the analysis. Table 1 depicts the studies’ focus area or categorization. What is common among the studies reviewed is that they mostly focused on the identification and measurement of innovation activities among informal micro-enterprises. They mostly focused on the identification of innovation limiting than fostering factors. They mostly adopted a qualitative research methodology. And there has been more emphasis on the formal than the informal sector.

There are contrary theories relating to the innovation activities of small businesses and large enterprises. When contrary theories exist, future related studies become necessary as they can clarify the differences in the existing theories. The review identified the following themes: There are more innovation limiting than fostering factors in the informal sector; the Innovation capacity of

informal micro-enterprises is severely hampered by innovation tradition and social tax. Innovation-oriented government’s support initiatives are inaccessible to informal micro-enterprises; Informal micro-enterprises engage in incremental than radical innovation; Innovation probabilities of informal micro-enterprises highly depend on the creativity of the entrepreneur, and customers have limited disposable income. The existing innovation models assume an established innovation system, and the past innovation surveys mostly focused on the formal sector.

Step 4: Presentation of findings and use of research results

Similar to empirical studies, conceptual or theoretical studies should also have findings. As explained by Briner and Denyer (2012), the findings explain what is known and what is not known about the systematic review question. We had asked the following questions under the introduction section of this paper: What does the existing literature reveal about innovation activities of informal micro-enterprises? What are the research gaps? and what are the insights that can be shared? The questions were answered under the findings and discussion section and the gaps and opportunities for future research section. The summary is portrayed in Table 1.

The findings suggest that it will be challenging for informal micro-enterprises to engage in radical innovation. Thus, since there is a need for a flourishing informal sector, mechanisms need to be put in place to turn threats into opportunities so that informal micro-enterprises can engage more in radical innovation. Since the informal sector is a salient feature of developing countries, the Governments have to consider providing financial and non-financial support to informal micro-enterprises in their informality. Researchers should also pay more attention to the informal sector. This paper presents future research opportunities in the following sections and makes a recommendation in the conclusion section.

Findings and discussion

What does the existing literature reveal about innovation activities of informal micro-enterprises? And what are the insights that can be shared?

From the analysis, themes emerged and we present them below together with discussion and our views.

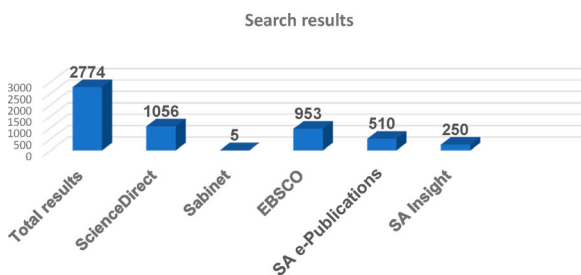


Figure 2: Literature search results.

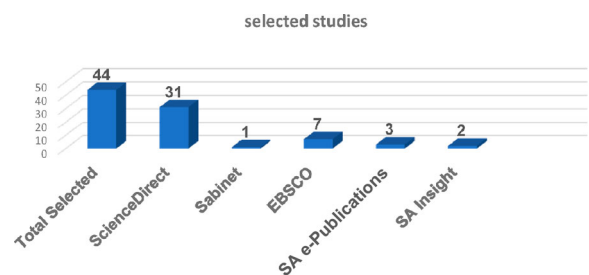


Figure 3: Selected studies.

Table 1: Summary of findings, references and gaps.

Focus area	Findings	References	Identified gaps
Innovation activity	The survival of informal micro-enterprises depends on their ability to innovate Radical and incremental innovation activities require distinct management practices, capabilities and organizational components Radical innovations are primarily found in the developed countries and are based on R&D. Whereas, incremental innovations are common in developing countries Firms have to engage in both radical and incremental innovation	Ivers 2013; Smith 2015; Booyens, Molotja, and Phiri 2012; Jugend et al. 2018; Kahn 2018; De Beer and Armstrong 2015; Mowatt 2018; Mendi and Mudida 2018; Links, Hart, and Jacobs 2014; Fu, Mohnen, and Zanello 2018.	Little is known about how radical innovations can be accelerated in developing countries
Factors that foster and limit innovation The informal sector and its schools of thought	Previous studies revealed that there are more innovation limiting than fostering factors in the informal sector The informal sector is a salient feature of most African countries. Owners of informal micro-enterprises are less educated and are incompetent. Informal micro-enterprises substantially contribute to economic growth, job creation and income generation among the less skilled members of the society There are three schools of thought pertaining to the informal sector. The dualist, the structuralist and the legalist.	Rose, Jones, and Furneaux 2016; Booyens, Molotja, and Phiri 2012; Mendi and Mudida 2018. Links, Hart, and Jacobs 2014; Mendi and Mudida 2018; WIPO 2013; Chimucheka 2013; Fu, Mohnen, and Zanello 2018; De Beer and Armstrong 2015; Charman 2016; GEM 2017; TIPS 2002; Yu 2017; Kumah and Omilola 2014.	The existing literature lacked evidence on how the identified innovation limiting factors can be addressed Little is known about how informal micro-enterprises' potential to grow the economy and create sustainable jobs can be fully realized
Innovation oriented government support mechanisms in South Africa	Government support directly and indirectly affects informal micro-enterprises' innovation performance Government support has often led to radical innovations Government support initiatives have been focused on the formal sector thereby neglecting the informal sector	Jugend et al. 2018; Links, Hart, and Jacobs 2014; WIPO 2013; La Porta and Shleifer 2014; De Beer and Armstrong 2015.	Little is known about how government support initiatives can be made accessible to informal micro-enterprises in their informality
Informal micro-enterprises' innovation activity	Informal micro-enterprises' innovations are incremental than radical Previous studies deemed the informal sector unfavourable for innovation activities Innovation probabilities of informal micro-enterprises are highly dependent on the creativity of the owner	Links, Hart, and Jacobs 2014; La Porta and Shleifer 2014; De Beer and Armstrong 2015; Mendi and Mudida 2018.	There is no guidance on suitable mechanisms through which informal micro-enterprises can engage in radical innovation Little is known about how informal micro-enterprises engage in innovation activity throughout all basic innovation stages
Barriers to innovation in the informal sector	Lack of resources is a major barrier to innovation in the informal sector Social constraints that emanated from the previous regime	Fu, Mohnen, and Zanello 2018; De Beer and Armstrong 2015.	Little is known about suitable alternative sources of funding and structural capital for the informal micro-enterprises
Existing innovation theories and models/frameworks	There are two major theories of innovation that focused on the relationship between market structure, firm's size and innovation. Schumpeter's and Arrow's innovation management theory The application of the existing innovation models in the developing countries becomes a challenge as they assume an established innovation system. The existing innovation models fail to provide direct support on a practical level on how innovation activities can be executed on each innovation stage	Zemplerova and Hromadkova 2012; Acs and Audretsch 1987, 1988; Wennekens et al. 2005; Wagner and Hansen 2005; Izadi, Zarrabi, and Zarrabi 2013; Cooper 1993; Stock et al. 2017; Rose, Jones, and Furneaux 2016; Amini, Torane, and Hernandez-Munoz 2015; Serrano-Santoyo 2013; Silviana 2018; Rogers 2003; Seifried, Katz, and Tutka 2017; Pylak and Wojnicka-Sycz 2016.	There is no tailored innovation model/framework that takes into account informal micro-enterprises' context. And also illustrate suitable mechanisms through which they can engage in an innovation activity on each innovation phase

Source: Own compilation based on the results of the systematic review

There is more innovation limiting than fostering factors Mendi and Mudida (2018) and Links, Hart, and Jacobs (2014) assert that the survival of most firms in the informal sector depends on their ability to innovate. Thus, it is imperative for informal micro-enterprises to constantly engage in innovation activity, as this would enable them to transform into sustainable businesses that significantly contribute to economic growth and job creation.

A firm's ability to innovate is dependent on the existence of innovation fostering and limiting factors in that firm's micro, market and macro environment. The existence of more innovation fostering than limiting factors increases the firm's probabilities to engage in innovation activities. Whereas the existence of more innovation limiting than fostering factors decreases the firm's probabilities to engage in innovation activities.

The existing literature revealed that there is more innovation limiting than fostering factors among informal micro-enterprises. Subsequently, the informal sector has not been considered a viable environment for innovation activities (De Beer and Armstrong 2015; Fu, Mohnen, and Zanello 2018). Accordingly, it was revealed that the ability of informal micro-enterprises to engage in innovation activities is limited by firm size, financial constraints, human capital constraints, information constraints, social constraints, location and infrastructure constraints (De Beer and Armstrong 2015; Fu, Mohnen, and Zanello 2018). We classified the identified innovation limiting factors into two categories, which are innovation tradition and social tax. These categories are discussed in the next sections.

The only innovation fostering factors that could be identified from the existing literature are that informal micro-enterprises are diverse and owned by youth (Agwa-Ejon and Mbohwa 2015). While a study by Agwa-Ejon and Mbohwa (2015) could identify innovation fostering factors among informal micro-enterprises, its limitation is that it was only conducted in one location of one township. Subsequently, the findings have generalisability issues.

Overall, it seems that previous studies mostly focused on the identification of innovation limiting factors than fostering factors in the informal sector. In light of the importance of innovation, it is imperative to determine solutions to the identified innovation limiting factors. By so doing, salient threats will be turned into opportunities.

Innovation capacity is severely hampered by innovation tradition

The following innovation limiting factors: firm size, financial constraints, human capital constraints, information constraints, location and infrastructure constraints, as identified above can be referred to as innovation tradition related innovation limiting factors.

Innovation has been understood as a costly and highly specialized endeavour that requires substantial investment in R&D, human capital which mostly relates to employees with STEM qualifications and structural capital which relates to well-established infrastructure and support environment (De Beer and Armstrong 2015; Fu,

Mohnen, and Zanello 2018). Subsequently, renowned innovation authors such as Schumpeter considered large enterprises to be best placed to engage in innovation activities.

Due to their informality and magnitude, informal micro-enterprises lack access to finance; they cannot invest in research and development; they lack the ability to recruit highly skilled personnel; they have no collaboration networks with large firms and universities, and they often cannot afford new technologies among others. Subsequently, these firms engage less in innovation activity and those that do innovate often engage in incremental rather than radical innovation (La Porta and Shleifer 2014; Links, Hart, and Jacobs 2014). We are of the view that this is due to innovation tradition. If suitable alternative mechanisms through which firms can engage in innovation activities, in particular, radical innovation can be determined, more informal micro-enterprises can engage in radical innovation.

The aforementioned view is based on the fact that one does not necessarily have to be highly educated or holding a STEM qualification to formulate novel ideas and solutions that can be transformed into radical innovations. Anyone can think and conceptualize novel ideas or solutions that can be transformed into radical innovations. Thus, it becomes a necessity to determine suitable innovation mechanisms that can be introduced in the informal sector to aid informal micro-enterprises to engage in radical innovation.

Innovation capacity hampered by social tax

The social constraints can be referred to as a social tax. A substantial proportion of senior black South Africans are uneducated and unemployable as they were disadvantaged by the previous regime. Moreover, a substantial proportion of informal micro-enterprises' owners are descendants of the aforementioned historically disadvantaged generation (Chimucheka 2013). Thus, when the informal micro-enterprises generate some profit, the owners feel obliged to share the profits with close relatives and family members who are unemployed instead of re-investing the profits in the firm so that the firm can engage in innovation activities and grow. These social responsibilities are also often informally referred to as a black tax.

Black tax is not all doom and gloom, there are university graduates whose studies were funded through black tax and there are also businesses that were established through black tax. In light of the need for informal micro-enterprises to engage in innovation activities, if it is often impractical for them to save profits and invest in innovation activities, other less understood and suitable sources of funding should be explored.

Innovation-oriented government's support initiatives inaccessible to informal micro-enterprises

The existing literature revealed that the Government's innovation-oriented financial and non-financial support initiatives are critical inputs to firms' innovation activities. Firms that receive the government's innovation-oriented support can invest in R&D and hire highly

qualified personnel. Subsequently, they often engage in radical innovation. Innovation-oriented government support can be in the form of grants, tax incentives, state-sponsored labs, direct investment through public venture capital or some form of collaboration (Jugend et al. 2018).

In the South African context, from 1996 to date, innovation-oriented government support initiatives focused on supporting formal innovation activities. The informal sector has largely been neglected (WIPO 2013; La Porta and Shleifer 2014; Links, Hart, and Jacobs 2014; De Beer and Armstrong 2015). Unfortunately, a firm has to be recognized as a formal firm by way of registration before it can be granted access to innovation-oriented services of support institutions. This suggests that by virtue of their registration status, informal micro-enterprises automatically become excluded from innovation-oriented government support initiatives.

In light of the above, it can be argued that a lack of government support is a major contributory factor to informal micro-enterprises' failure to engage in radical innovation. The informal sector is a salient feature of Gauteng and other provinces in the Republic of South Africa. A flourishing informal sector will be a solution to the existing economic problems. Thus, there is a need for the government to consider supporting innovation activities of informal micro-enterprises in their informality. If informal micro-enterprises can see the value add by the government, they may be open for taxation, thereby increasing the government's tax base and revenue.

Informal micro-enterprises engage in incremental rather than radical innovation

In spite of the constraints that hamper the ability of informal micro-enterprises to engage in innovation activities, the existing literature revealed that some innovations do take place in the informal sector. Links, Hart, and Jacobs (2014), aver that to some extent, the informal sector has been a source of innovations, some of these innovations happened as a result of a collaboration between formal and informal firms.

Unfortunately, the innovations that take place in the informal sector are often incremental than radical (La Porta and Shleifer 2014; Links, Hart, and Jacobs 2014). As explained by La Porta and Shleifer (2014), innovation in informal micro-enterprises has often been understood as the purchase and use of new machines to improve production processes. The authors also suggested that there is more adaptation and imitation than the original invention in the informal sector.

De Beer and Armstrong (2015) posit that radical innovations, such as the invention of new products or services, rarely occur in the informal sector. Unfortunately, even though the innovation models are meant to be prescriptive, no direct support is provided on a practical level on how ideas can be generated for innovation purposes. Subsequently, supply and demand interactions are argued to play a crucial role in shaping learning and innovation processes in informal micro-enterprises. Customers and suppliers are considered an important source of learning. Traditional knowledge is transmitted from

one generation to the other within the family or social groups (De Beer and Armstrong 2015).

It is apparent from the literature reviewed that some innovations do take place in the informal sector. Yet, there is no clear explanation of how the informal micro-enterprises' innovation process unfolds throughout the basic innovation stages, which is from the time when an innovative idea is generated until innovation diffusion.

Innovation probabilities highly dependent on the creativity of the entrepreneur

Due to the existence of more innovation limiting than fostering factors among informal micro-enterprises, the existing literature revealed that the innovation activity of informal micro-enterprises is highly dependent on the creativity of the entrepreneur (Mendi and Mudida 2018). This suggests that only informal micro-enterprises that are owned by creative individuals are innovative whereas their counterparts are not innovative. This is a very questionable suggestion as it implies that ordinary employees within an informal micro-enterprise do not initiate innovation activities. Accordingly, it will be interesting to collect primary data from employees of informal micro-enterprises to determine if they ever generated innovative ideas that were transformed into innovations.

Customers have limited disposable income

The informal sector often supplies goods and services to poor people who mainly reside in the townships. By virtue of their economic conditions (most of them are unemployed and depend on grants and piece jobs), these people often have limited disposable income (Chimucheka 2013). This leads to poor demand for goods and services produced by informal micro-enterprises and places a risk on innovation diffusion where innovation takes place. Thus, informal micro-enterprises face a challenge to innovate in such a manner that will make their innovations affordable to the customers that they serve, while such innovations remain competitive at the same time.

The existing innovation models assume an established innovation system

Izadi, Zarrabi, and Zarrabi (2013) critically reviewed firm-level innovation models over a period of three decades. The review revealed that, in terms of the innovation systems framework, innovation incorporates both traditional research and development activities and the diffusion of technologies through society and all of the factors, which influence these. The most significant challenge with the innovation systems framework is its application to developing countries as it assumes an established innovation system. This is mostly because the innovation systems framework was conceptualized in the context of the strong market economies of North America, Europe and Japan (Izadi, Zarrabi, and Zarrabi 2013). Thus, it can be argued that the models/frameworks reviewed by Izadi, Zarrabi, and Zarrabi (2013) are not suitable for informal micro-enterprise contexts.

This paper also reviewed a sample of the existing innovation models/frameworks to determine if they can provide some form of guidance to informal micro-

enterprises on how to engage in innovation activities. Innovation models/frameworks designed by the following authors were reviewed: Cooper (1993), Stock et al. (2017), Rose, Jones, and Furneaux (2016), Amini, Torane, and Hernandez-Munoz (2015), Serrano-Santoyo (2013), Silviana (2018), Rogers (2003), and Seifried, Katz, and Tutka (2017). The review revealed that these models or frameworks are not suitable for informal micro-enterprises' context as they mostly emphasize the need for R&D investment, human capital, and structural capital among others. To some extent, these models may also be too complex for the informal sector setting.

A study conducted by Pylak and Wojnicka-Sycz (2016) revealed that changes in regional innovation models can speed up the development process of less-developed regions. Thus, developing countries can significantly benefit from tailor-made innovation models/frameworks.

Past innovation surveys mostly focused on the formal sector

Charmes, Gault, and Wunsch-Vincent (2016) assert that research on innovation has primarily emphasized the contributions of the formal sector, thereby neglecting the informal sector. This is particularly the case with national surveys that attempt to quantify and measure innovation activities and outputs in South Africa for comparative purposes (Links, Hart, and Jacobs 2014).

It can be argued that the aforementioned predicament occurred because the informal sector has not been perceived as a viable environment for innovation activities. Subsequently, researchers mostly focused on the formal sector. This suggests that there is a substantial number of research gaps pertaining to the innovation activities of informal micro-enterprises.

What are the research gaps?

The following research gaps and opportunities for future research were identified from the systematic review.

Gaps and opportunities for future research

The informal sector is a salient feature of Gauteng province and other provinces in the Republic of South Africa. Thus, a flourishing informal sector will be a solution to South African economic challenges. Future studies should determine what could be done to make the government's innovation-oriented financial and non-financial support initiatives accessible to the informal sector without formalizing firms in the informal sector.

The literature revealed that informal micro-enterprises engage more in incremental innovation than radical innovation. Thus, future studies should determine suitable mechanisms through which informal micro-enterprises can engage in radical innovation. Radical innovations are crucial as they often lead to the rise of new industries.

Previous innovation studies primarily focused on identifying innovation constraints among informal micro-enterprises. With a limited number of studies focusing on the identification of innovation fostering factors. Thus, future studies should determine both the contemporary innovation fostering and limiting factors

among informal micro-enterprises and also attempt to determine feasible mechanisms through which the innovation limiting factors can be addressed.

For instance, the lack of both funding and structural capital are major innovation limiting factors among informal micro-enterprises. Thus, future studies should attempt to determine suitable and effective alternative sources of funding and structural capital for informal micro-enterprises.

The literature revealed that most innovation surveys conducted in the past were focusing on the formal sector and government-funded innovations. Thus, future studies can replicate innovation surveys conducted in the formal sector in the informal sector to determine similarities and differences among others. For primary research, views of employees should also be captured.

Literature also revealed that most innovation studies conducted in the past adopted qualitative research methodology. Thus, to enhance knowledge and for triangulation purposes, such studies can be replicated using different research methodologies.

Little is known about how informal micro-enterprises engage in innovation activities throughout all basic innovation phases, as previous studies mostly focused on the identification and measurement of informal sector innovations. Thus, future studies should determine how innovating informal micro-enterprises engage in an innovation activity throughout all basic innovation stages (i.e. from idea generation to innovation diffusion stage).

Innovation is a risky endeavour. The literature did not explain what innovation-related risks are prominent in the informal sector and how informal micro-enterprises can manage them. Thus, future studies should determine how informal micro-enterprises manage innovation-related risks to avoid innovation failures.

Future studies should attempt to validate the following view: small firms are more innovative than large firms as large firms get too comfortable and innovate less. They tend to take their market share for granted and behold before they know it, small firms have displaced them.

Conclusion

Following the identified research methodology, this paper systematically reviewed the existing literature on innovation activities of informal micro-enterprises. Accordingly, the paper presented what the existing literature reveals about innovation activities of informal micro-enterprises, some insights, research gaps, and future research opportunities. While the study was able to answer the research question, it is imperative to point out that the study was limited by the limited availability of innovation studies that focused on informal micro-enterprises in the Gauteng province and South African context. The existing innovation studies mostly focused on formal small businesses. In light of the insight gained from the existing literature, it can be argued that this is because the informal sector has not been recognized as a viable environment for innovation activities. There are more innovation limiting than fostering factors in the informal sector. Subsequently, the innovations in that space are incremental rather than radical.

Since most of the previous innovation studies focused on the formal sector and neglected the informal sector, there is a substantial number of research gaps pertaining to innovation activities of informal micro-enterprises. Thus, since the informal sector is a salient feature of every developing country, it will be beneficial to address these gaps. A flourishing informal sector will be a solution to developing countries' economic challenges.

Lastly, the existing literature also revealed that the existing innovation models fail to provide direct support on a practical level on how innovation activities can be executed in each innovation phase. The literature further revealed that changes in regional innovation models enhance the development of less-developed regions. Thus, there is a need to design tailor-made innovation models/frameworks to suit the informal micro-enterprises' context. Tailored models/frameworks should also describe feasible inputs and activities for each innovation phase. This will assist informal micro-enterprises to engage in radical innovation.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID iDs

Lavhelesani Mulibana  <http://orcid.org/0000-0001-6049-9294>

Ravinder Rena  <http://orcid.org/0000-0002-4156-8693>

References

- Acs, Z. J., and D. B. Audretsch. 1987. "Innovation, Market Structure, and Firm Size." *Review of Economics and Statistics* 69 (4): 567–574.
- Acs, Z. J., and D. B. Audretsch. 1988. "Innovation in Large and Small Firms: an Empirical Analysis." *Journal of American Economic Review* 78 (4): 678–690.
- Agwa-Ejon, J. F., and C. Mbohwa. 2015. "The Impact of Research and Innovation on SMMEs in Gauteng Province South Africa." University of Johannesburg, March 19. Accessed August 8, 2018. <https://ujcontent.uj.ac.za/>.
- Amini, A., M. Torane, and L. Hernandez-Munoz. 2015. "Designing an Innovation Engine Model and a Software Tool to Meet Large Organizations Challenges with SMEs Capabilities, a Pilot Study." *Journal of Social and Behavioral Sciences* 195: 251–257.
- Arrow, K. J. 1962. *Economic Welfare and the Allocation of Resources for Invention: In National Bureau of Economic Research, The Rate and Direction of Inventive Activity: Economic and Social Factors*. Princeton: Princeton University Press (reprinted in *Essays in the Theory of Risk-Bearing* (1971)).
- Asikhia, O. U., and M. J. Van Rensburg. 2015. "SMMEs Wealth Creation Model: A Conceptual Framework." *African Journal of Hospitality, Tourism and Leisure* 4 (1): 1–19.
- Booyens, I., N. Molotja, and M. Z. Phiri. 2012. "Innovation in High-Technology SMMEs: The Case of the New Media Sector in Cape Town." *Springer Science and Business Media* 24 (2): 289–306.
- Briner, R. B., and D. Denyer. 2012. *Systematic Review and Evidence Synthesis as a Practice and Scholarship Tool. Handbook of Evidence-Based Management: Companies, Classrooms and Research*. New York: Oxford University Press.
- Charman, A. 2016. *The South African Township economy and Informal Micro-Enterprises: What are the prospects for youth employment and entrepreneurship?* Cape Town: World Bank Group.
- Charmes, J., F. Gault, and S. Wunsch-Vincent. 2016. "Measuring Innovation in the Informal Economy – Formulating an Agenda." *Journal of Intellectual Capital* 19 (3): 1–50.
- Chimucheka, T. 2013. "Overview and Performance of the SMMEs Sector in South Africa." *Mediterranean Journal of Social Sciences* 4 (14): 1–13.
- Cooper, R. G. 1993. *Winning at New Products: Accelerating the Process from Idea to Launch*. 2nd ed. Reading, Mass.: Addison-Wesley.
- Counsell, C. 1997. "Formulating Questions and Locating Primary Studies for Inclusion in Systematic Reviews." *Annals of Internal Medicine* 127: 380–387.
- De Beer, J., and C. Armstrong. 2015. "Open Innovation and Knowledge Appropriation in African Micro and Small Enterprises (MSEs)." *The African Journal of Information and Communication (AJIC)* 16: 2–12.
- Denyer, D., and D. Tranfield. 2009. *Producing a Systematic Review: the Sage Handbook of Organisational Research Methods*. Thousand Oaks, CA: Sage publications Ltd.
- DSBD. 2018. *Speech by Minister of Small Business Development, Ms Lindiwe Zulu, on the Occasion of the Launch of UNISA Enterprise and Supplier Development*. Department of Small Business Development: Pretoria.
- Fu, X., P. Mohnen, and G. Zanello. 2018. "Innovation and Productivity in Formal and Informal Firms in Ghana." *Journal of Technological Forecasting & Social Change* 131: 315–325.
- GEM. 2017. *Global Entrepreneurship Monitor Report 2016/17*. London: Global Entrepreneurship Monitor.
- Gkypali, A., D. Filiou, and K. Tsekouras. 2017. "R&D Collaborations: Is Diversity Enhancing Innovation Performance?." *Journal of Technological Forecasting & Social Change* 118: 143–152.
- Ivers, H. 2013. *Innovation in Small Firms, Select Research on Activity and Capacity*. New York: Nova Science Publishers, Inc.
- Izadi, A., F. Zarrabi, and F. Zarrabi. 2013. "Firm-Level Innovation Models." *Journal of Social and Behavioral Sciences* 75: 146–153.
- Jugend, D., C. J. C. Jabbour, J. A. A. Scaliza, R. S. Rocha, J. A. G. Junior, H. Latan, and M. H. Salgado. 2018. "Relationships among Open Innovation, Innovative Performance, Government Support and Firm Size: Comparing Brazilian Firms Embracing Different Levels of Radicalism in Innovation." *Journal of Technovation* 74-75: 54–65.
- Kahn, K. B. 2018. "Understanding Innovation." *Journal of Business Horizons* 61 (3): 453–460.
- Kumah, O. M., and B. Omilola. 2014. *Small Business is Big Business: A UNDP Perspective on SMME Development in South Africa*. Pretoria: United Nations Development Programme.
- La Porta, R., and A. Shleifer. 2014. "The Unofficial Economy in Africa." *University of Chicago Press* 1: 261–306.
- Links, A. L. M., T. Hart, and P. Jacobs. 2014. "The Dynamics of Local Innovations among Formal and Informal Enterprises: Stories from Rural South Africa." *African Journal of Science, Technology, Innovation and Development* 6 (3): 175–184.
- Marnewick, C. 2014. "Information and Communications Technology Adoption Amongst Township Micro and Small Business: The Case of Soweto." *South African Journal of Information* 16 (1): 12.
- Mendi, P., and R. Mudida. 2018. "The Effect on Innovation of Beginning Informal: Empirical Evidence from Kenya." *Journal of Technological Forecasting & Social Change* 131: 326–335.
- Mowatt, G. 2018. "Top 10 South African Inventions." SAgoodnews, August 5. Accessed December 12, 2018.

- <https://www.sagoodnews.co.za/top-10-south-african-inventions/>.
- Nemaenzhe, P. P. 2010. "Retrospective Analysis of Failure Causes in South African Small Businesses." PhD diss., University of Pretoria.
- Pylak, K., and E. Wojnicka-Sycz. 2016. "Transforming Innovation Models to Change the Development Paths of Less-Developed Regions." *Procedia Engineering* 161: 2179–2183.
- Remund, M. C., M. P. Ortiz, and H. J. Gehrke. 2017. "The Vitruvian Man of Leonardo da Vinci as a Model of Innovative Entrepreneurship at the Intersection of Business, art and Technology." *Journal of Innovation and Entrepreneurship* 6 (1): 17. doi:10.1186/s13731-017-0077-9.
- Rogers, E. M. 2003. *Diffusion of Innovations*. 5th ed. New York: Free Press.
- Rogerson, C. M. 2000. "Successful SMMEs in South Africa: The Case of Clothing Producers in the Witwatersrand." *Development Bank of Southern Africa* 17 (5): 1–31.
- Rose, J., M. Jones, and B. Furneaux. 2016. "An Integrated Model of Innovation Drivers for Smaller Software Firms." *Journal of Information and Management* 53 (3): 307–323.
- SEDA. 2016. *The Small, Medium and Micro Enterprise Sector of South Africa*. Small Enterprises Development Agency: Pretoria.
- Seifried, C., M. Katz, and P. Tutka. 2017. "A Conceptual Model on the Process of Innovation Diffusion Through a Historical Review of the United States Armed Forces and Their Bowl Games." *Sport Management Review* 20: 379–394.
- Serrano-Santoyo, A. 2013. "Exploring a Framework for Innovation from the Perspective of Complexity Science." *Procedia Technology* 9: 139–145.
- Silviana, B. G. 2018. "Open Innovation Model: Enabling the Market Uptake of Innovation." *Procedia Manufacturing* 22: 893–899.
- Smit, W. 2017. "SMMEs Contribute 36% to Economy." IOL. Accessed March 22, 2017. <https://www.iol.co.za/business-report/opinion/smmes-contribute-36-to-economy-8269623>.
- Smith, D. 2015. *Exploring Innovation*. 3rd ed. London: McGraw-Hill.
- Stock, T., M. Obenaus, A. Slaymaker, and G. Seliger. 2017. "A Model for the Development of Sustainable Innovations for the Early Phase of the Innovation Process." *Procedia Manufacturing* 8: 215–222.
- The Presidency. 2012. *National Development Plan 2030*. South Africa: Pretoria.
- The Republic of South Africa. 1996. *National Small Business Act*. Pretoria: South Africa.
- TIPS. 2002. *The Economics of SMMES in South Africa*. Pretoria: Trade and Industrial Policy Strategies.
- Tranfield, D., D. Denyer, and P. Smart. 2003. "Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review." *British Journal of Management* 14 (3): 207–222.
- Wagner, E. R., and E. N. Hansen. 2005. "Innovation in Large Versus Small Companies: Insights from the US Wood Products Industry." *Journal of Management Decision* 43 (5): 837–850.
- Wennekers, S., A. Van Stel, R. Thurik, and P. Reynolds. 2005. "Nascent Entrepreneurship and the Level of Economic Development." *Journal of Small Business Economics* 24 (3): 293–309.
- WIPO. 2013. *Conceptual Study on Innovation, Intellectual Property and the Informal Economy*. London: World Intellectual Property Organisation.
- Yu, D. 2017. "The Lesser Known and Scarier Facts About Unemployment in South Africa." Sowetan, September 3. Accessed September 4, 2017. <http://sowetanlive.co.za>.
- Zemplinerova, A., and E. Hromadkova. 2012. "Determinants of Firm's Innovation." *Prague Economic Papers* 21: 487–503.