

Business incubators and entrepreneurship development in Africa's innovation systems: a bibliometric review

Authors: Abiodun Egbetokun

Business incubators are a useful policy tool for spurring and supporting entrepreneurial businesses, but we know too little about their impact in Africa.

Introduction

Micro, small and medium-sized enterprises (MSMEs) are seen as a key part of the solution to welfare problems in low-income countries, and rightly so. MSMEs provide as much as 81% of total employment and 87% of value added in low-income countries (Haider et al., 2019). However, the typical MSME has low productivity and does not really last long (La Porta and Shleifer, 2014). One tool that has been widely used to improve the survival and productivity of MSMEs is the business incubator. Not to be confused with an innovation hub or accelerator, a conventional business incubator is an organisation that provides joint location, business support services and networks to small businesses (Bergek and Norman, 2008). Business incubators are very versatile: in addition to their regular services, they can administer other forms of business support intervention, such as direct funding, capacity building and tax incentives.

For this reason, since the 1980s business incubators have grown in popularity in Africa, producing some striking success stories. In Nigeria, for instance, [Spectra Industries Limited](#) graduated from the country's oldest incubator in 1998 to become a well-known manufacturer of functional foods. Most success claims about incubator programmes in Africa use such examples. There is, however, a need to shift away from these 'outliers' towards a systematic overview of incubator impact in Africa (Siyanbola et al, 2012). This project collects background data and takes stock of the current academic literature, as a first step towards a deeper understanding of what makes incubators successful and what impact they had across the continent. While this literature remains small, it appears to be growing in different directions. The bibliometric review described here identifies the key connections and themes that have emerged so far, laying the groundwork for further investigation of incubator impact in Africa.

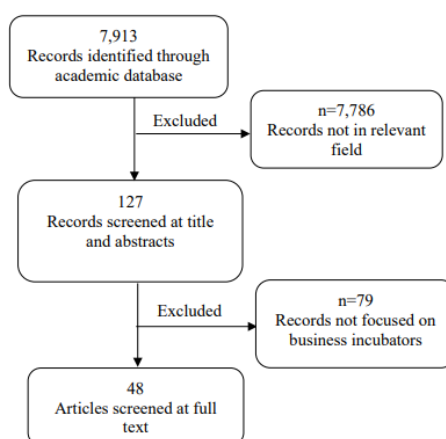
Policy Context

Around 18% of the world's population lives in Africa, which is the focus of this study. An exceptionally large share of these people is extremely poor. According to estimates from the [World Poverty Clock](#), 30% of Africa's population lived on less than \$1.9 per day as of February 2023, compared to 7% in South America and 3% in Asia. Given the central role of the private sector in poverty reduction, it is important to understand how to effectively support the survival and growth of private enterprises, beginning with an understanding of what works and what does not.

Methodology

I apply the [PRISMA](#) protocol to conduct a systematic review of the literature on incubators in Africa. The literature search was conducted in November 2020 on [Dimensions](#), a relatively new bibliographic database that overlaps well with Scopus and Web of Science but provides a broader coverage. The search in the title, keywords, abstract and full text of publications was run twice, each time combining one of the keywords *incubator* and *incubation* with each of Africa's countries and territories. Figure 1 illustrates the process followed in selecting the studies finally included in the systematic review. The resulting dataset of 48 studies was analysed using standard bibliometric methods including citation analysis¹ and bibliographic coupling² in version 1.6.15 of [VOSviewer](#).

Figure 1: Workflow of the literature selection process



Note: The database search initially returned 7913 results. These reduced to 127 when results were restricted to relevant disciplinary areas including Human Society; Commerce, Management, Tourism and Services; Business and Management; Economics; Built Environment and Design as well as Policy and Administration. The excluded fields include, inter alia, Biological Sciences, Medical and Health Sciences as well as Veterinary Sciences. With the help of a research assistant, I screened the titles and abstracts of each of the 127 remaining articles and eliminated another 79 that did not focus on business incubators. The studies eliminated at this stage include those that focus on unrelated topics (e.g., concrete processing and mobile applications development) but that belong to one or more of the included disciplinary areas and use one of the two main keywords at least once. For each of the 48 final studies, I stored the author(s), title, abstract, publication journal, publication year, type of access and number of citations. The full list can be found in the project's [working paper](#).

Main Findings

Overview of the literature

Figure 2 shows the growth trajectory of the academic literature. From 1993 until 2012, research studies on business incubators in Africa were few and far between – the average number of publications per year was only 1.3 across the entire continent. However, from 2013 onwards the literature experienced a rapid growth – average publications per year jumped to 5.7. Around 8 out of every 10 articles included in this study were published between 2013 and 2020. Only nine articles were published in 2020, the highest in any given year,

¹ Two publications are connected by a citation link if either one cites the other. The citation network is the result of all such links. For the purpose of this study, the citation link is non-directional; in other words, a link is counted once between two papers A and B whether A cites B, B cites A or they both cite each other. This approach helps to simplify the analysis and allows focus on the connectedness of the research on incubators in Africa.

² Two publications are said to be bibliographically coupled if they both cite a third publication. For instance, in a set of three papers A, B and C, both A and B are coupled if each of them made a reference to C. There is thus a probability that A and B are related in terms of their subject matter. The bibliographic coupling network helps us to gain insight into the intellectual shape of incubator research in Africa to date.

but this represented an 800% growth from 1993 when the first paper appeared. These results indicate that research on incubators in Africa is nascent but rapidly growing.

Interconnectedness of the literature

At the time of this study, only 31 of the 48 papers had been cited at least once. Total citations received by these papers was 162, giving an average of 5.2 citations per paper. Three-quarters of all citations referred to only ten publications. The ten top-cited papers were produced mainly by African researchers affiliated with institutions in South Africa (54%) and Nigeria (38%). This could be a reflection of the sheer size of the research and development (R&D) system in these two countries and their disproportionate contribution to research production in Africa. Of the 31 papers with citations, 9 have been cited only once and 22 have been cited at least twice. Figure 3 shows the citation network of the papers. Only 20 publications are in the largest connected component highlighted in the upper half and detailed in the bottom half of the figure. This connected component comprises five clusters. It is striking to note a key attribute of the citation network: sparse connection among the papers, suggesting that African researchers who study business incubators do not “talk much to one another”. This raises the need for researchers to be more systematic in their reviews of the literature.

Figure 2: Number of publications per year on business incubators in Africa

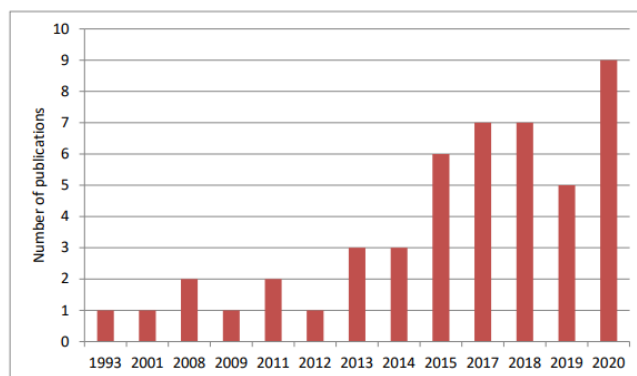
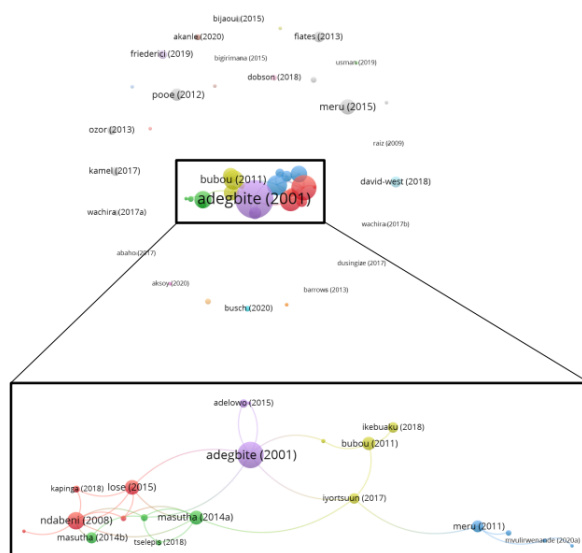


Figure 3: Citation network of research papers on business incubators in Africa



Note: Each bubble represents one paper, each line represents a co-citation link and bubble size is weighted by citations. Only 20 publications are in the largest connected component highlighted in the center of the circular network. The largest connected component is shown in detail in the box.

Major themes in African business incubator research

The bibliographic coupling network identifies five diverse and comprehensive research themes. Studies in the first theme focus on how different types of incubators offer support to different enterprise groups including digital entrepreneurs, women entrepreneurs and artisanal businesses. Studies in the second theme focus on the role of business incubators in innovation and the accumulation of capabilities by firms. The third theme includes studies that describe the impact of incubators on firm performance and youth employment. The fourth theme focuses on the link between business incubators and the start-up economy in African countries. The last theme studies business incubators as learning platforms. Some noteworthy gaps are present in this literature, however. First, topical issues such as climate change and industrialisation are conspicuously missing, although business incubators have a role to play in supporting the emergence and growth of enterprises that address these challenges. Second, there is a dearth of rigorous impact evaluations. Reliably assessing incubator impact requires rigorous quantitative analyses because qualitative assessments may be prone to social desirability bias when incubator managers, employees, tenants and other stakeholders are interviewed. Third, there are hardly any studies that closely examine the limits and potential opportunities for improving the specific forms of support that incubators offer across sectors and countries in Africa.

Policy Implications

Business incubators in Africa have been the subject of a growing but fragmented body of research. This body of research is, however, clear and coherent on the utility of business incubators as a tool for supporting the survival and growth of viable enterprises in Africa across different sectors. The absence of studies on topical issues (such as climate change and industrialisation) suggests that the existing incubators may be paying too little attention. The absence of rigorous impact evaluation studies may also indicate a poor demand for effectiveness by policymakers and incubator managers. These imply that policymakers in Africa need to think more about how to transform existing business incubators or create new ones that are adaptive and user-friendly. They also need to reflect on how the incubators will be adequately monitored.

Moving Forward

The coverage of this study may be limited due to the use of only one database. Further studies may compare the findings with what a similar search in the more conventional databases will yield. There is evidence supporting an adjustment of existing incubator support services to include psychology-based training on entrepreneurial behaviours (e.g., Campos et al, 2017). Both the academic literature and enterprise policy will benefit from studies that investigate this. In addition, I found no evidence on how to design and implement adaptive, responsive as well as inclusive incubation systems. This requires a thorough understanding of what works when and where. Private sector development policies will benefit from studies that provide this sort of evidence. Such studies will also help to answer questions on how business incubators can be designed to support firms that work in new and rapidly emerging sectors like biotechnology, digital technologies and green technologies. Finally, a quantitative impact evaluation of business incubators is much needed.

References

Bergek, A. and Norrman, C. (2008). Incubator best practice: a framework. *Technovation* 28: 20- 28

Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, 357(6357), 1287-1290.

Haider, K., Khanna, M., Kotei, M., Kushnir, K., Singh, S. and Sridhar, T. (2019). Micro, Small and Medium Enterprises - Economic Indicators (MSME-EI) Analysis Note (December 2019).
https://www.smefinanceforum.org/sites/default/files/MSME-EI%20Report_FINAL.pdf

La Porta, R. and Shleifer, R. (2014). Informality and Development. *Journal of Economic Perspectives* 28(3): 109-126.

Siyabola, W. O., Jesuleye, O. A., Adelowo, C. M., and Egbetokun, A. A. (2012). Coordination, Monitoring, and Impact Evaluation of Technology Incubators in Nigeria. In N. Ekekwe, & N. Islam (Eds.), *Disruptive Technologies, Innovation and Global Redesign: Emerging Implications*. Hershey: IGI Global.

*This note is based on research conducted as a part of PEDL ERG 7487.
The assistance of Charles Mabude with data collection is acknowledged.*