

RESEARCH ARTICLE

A BIBLIOMETRIC ANALYSIS OF E-COMMERCE PLATFORMS ON MARKET ACCESS OF INFORMAL ENTERPRISES IN DEVELOPING COUNTRIES (2006-2025)

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ABSTRACT

The objective of this study is to examine e-commerce platforms on market access for informal enterprises in developing countries from 2006 to 2025. The existing literature on e-commerce and informal economies is characterised by fragmentation and a lack of systematic, quantitative analysis that integrates these related fields. To address this gap, a bibliometric analysis was performed utilising data obtained from the Web of Science Core Collection (2006–2025). The findings reveal a steady growth in academic output, although contributions remain concentrated in a small number of countries. It also finds that most common themes are digital transformation, innovation and technology integration. The results indicate that e-commerce platforms are becoming increasingly recognised as ways for informal businesses to get access to markets. However, differences in digital infrastructure and academic representation show that growth and awareness are not always equal. The study recommends increased investment in digital infrastructure and the introduction of streamlined regulations by governments. Development partners and donors are encouraged to promote inclusive digital policies, while targeted capacity-building initiatives are necessary to empower informal enterprise owners and employees. Finally, the study calls for researchers in Africa, Latin America, and other developing countries to conduct context-specific empirical investigations to address research gaps identified in comparison with other findings from developed countries.

KEYWORDS

E-commerce platforms, informal enterprises, market access, developing country, digitalisation, bibliometric analysis

1. INTRODUCTION

Informal enterprises play a pivotal role in developing economies, serving as the primary source of employment, income and livelihood for the majority of the population while also supporting economic growth (Sultana et al., 2022; Etim and Daramola, 2020; Ibidunni et al., 2020). The International Labour Organisation (ILO, 2020) estimates that about 62% (2 billion) of the working population worldwide find employment prospects in informal businesses, with 90% of these workers residing in low-income nations. These businesses frequently function outside of established legal and institutional structures, without official registration, employment protection, and tax contributions (Sultana et al., 2022). Notwithstanding their contribution to GDP and economic resilience, the absence of supportive regulatory framework, restricted market reach and access to financial services are some of the ongoing challenges that informal businesses face (Etim and Daramola, 2020). In particular, access to formal markets remains one of the most pressing challenges reducing the ability of these businesses to scale, diversify or formalise. In this regard, in areas impacted by structural economic restrictions, unemployment, and inequality, informal entrepreneurship has evolved from a strategic option to survival need (Ibidunni et al., 2020).

E-commerce platforms have become a viable way to connect informal businesses with formal markets. As trade becomes more digitalised, small and informal enterprises can reach a larger consumer base without requiring physical infrastructure, thereby lowering traditional barriers to

entry (Costa and Castro, 2021). E-commerce is a vital source of market access for both SMEs and informal enterprises, as empirical data indicates that its adoption can improve business performance and entrepreneurial orientation (Octavia et al., 2020). The significance of this shift is particularly significant in emerging nations where the informal sector is pervasive and digital penetration is growing quickly as suggested by recent studies (Monson and Macauley, 2024; Monson and Momodu, 2024). Digital tools have already demonstrated quantifiable advantages, including increased financial accessibility, decreased transaction costs, and increased productivity (Miller et al., 2020). However, in many developing economies, the adoption of e-commerce is still hampered by infrastructural deficiencies, such as inconsistent internet connectivity, high operating expenses, and insufficient ICT literacy (Monson, 2024; Brima and Sesay, 2019).

There is a growing body of research on the relationship between e-commerce platforms and market access for informal enterprises in developing nations, however, the existing literature remains fragmented. While a number of studies have focused on particular aspects of e-commerce, such as distribution networks, artificial intelligence applications, and sustainable logistics, others have looked at different aspects of the informal economy, such as informal lending and factors that influence entrepreneurship (Bach and Hoang, 2025; Bawack et al., 2022; Cano et al., 2022; Ganesh and Naresh, 2024; Achim et al., 2023). Nevertheless, a comprehensive and systematic quantitative overview that bridges these two domains is currently lacking.

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This gap is significant since many small and medium-sized enterprise (SMEs) in the informal sector are unable to take advantage of the revolutionary power of e-commerce in global marketplaces because of enduring digital and structural constraints (Costa and Castro, 2021). In addition, the rise of informality brought on by e-commerce creates new governance issues, particularly in underdeveloped and rural areas (Tang and Zhu, 2020). In the absence of an integrated picture, both researchers and policymakers are unable to recognise important works, emerging trends, and possible areas for intervention. With these factors in mind, this study aims to map the academic discourse, identify research gaps, highlight important themes and contributors, and provide a comprehensive understanding of how e-commerce platforms are affecting market access for informal businesses in developing nations. It does this by conducting a bibliometric analysis.

This bibliometric analysis aims to: (a) identify and analyse trends in annual scientific production and average citation rates related to e-commerce platforms and market access for informal enterprises in developing countries; (b) determine the most relevant sources, influential authors, and key affiliations contributing to this literature; (c) examine the most globally cited articles, dominant terms, and prevalent themes within the studies; (d) delineate the conceptual framework of the research domain, encompassing its thematic progression over time; (e) explore the intellectual structure through the analysis of co-citation networks among published literature; and (f) outline the social structure of the research field, with particular emphasis on collaboration patterns and geographical distribution.

The following specific questions are the focus of this study in accordance with the research objectives:

RQ1: What is the evolution of annual scientific production and average citations per year in the literature concerning e-commerce platforms and market access for informal enterprises in developing countries from 2006 to 2025?

RQ2: What are the most prominent and influential academic sources, authors, and Institutional affiliations in the research domain of e-commerce platforms and market access for informal enterprises in developing countries from 2006 to 2025?

RQ3: What are the most cited articles globally, the dominant terminology, and the prevalent research themes in studies examining e-commerce platforms and market access for informal enterprises in developing countries from 2006 to 2025?

RQ4: What is the conceptual framework of research concerning e-commerce platforms and market access for informal enterprises in developing countries, and how have the principal themes developed from 2006 to 2025?

RQ5: What defines the intellectual structure of this research domain, as demonstrated by an analysis of co-citation networks within the published literature from 2006 to 2025?

RQ6: What is the social structure of the research field concerning collaboration networks among authors and institutions, as well as the geographical distribution of research efforts on e-commerce platforms and market access for informal enterprises in developing countries?

This study holds considerable significance for a wide range of stakeholders, including academics, donor community, investors, development practitioners and policymakers. It provides a much-needed consolidation of scholarly knowledge, through an analysis of publication trends and a mapping of the scientific structure of research on e-commerce platforms and informal market access in developing countries. The study contributes fresh insights and updates to the body of literature by methodically examining publications on e-commerce platforms and informal enterprises within developing economies. Furthermore, it promotes evidence-based policymaking by identifying understudied research topics and directing future investigations towards more equitable digital and economic development initiatives. The results of this study are anticipated to guide efforts to improve inclusive growth and encourage formalisation through technology-driven solutions, given the significant contribution of the informal sector to job creation and poverty alleviation, especially in low-income nations (Sultana et al., 2022). As a result, the research not only advances scholarly knowledge but also encourages real-world applications for sustainable development.

This study was motivated by the lack of a comprehensive bibliometric review that looks at how e-commerce might help informal businesses in developing countries get access to markets. Despite the abundance of studies on the adoption of e-commerce and the informal sector constraints, no previous study has quantitatively studied the interactions between these domains or evaluated research patterns over time on this subject. As demonstrated during the COVID-19 epidemic, when e-commerce arose as a lifeline for informal companies but encountered systemic impediments, the urgent need to inform policy solutions serves as further motivation for our study (Ihnissi and Klaib, 2021). This study intends to map the academic landscape in order to bring different findings together and encourage focused scholarly and policy attention.

The paper's structure is divided into five primary sections. The study's background and justification are established in the introduction, which is presented in Section 1. The approach, including the bibliometric instruments and analytical strategies employed to gather and examine the data, is described in Section 2. The findings and interpretations are shown in Section 3, which also provides information on authorship patterns, publishing trends, keyword occurrences, and citation dynamics. The main findings are discussed in Section 4, where they are interpreted in light of the body of current literature, real-world applications, and knowledge gaps that have been found. The conclusion, which summarises the study's contributions and suggests future research paths, is provided in Section 5.

2. METHODOLOGY

This research utilised a quantitative approach, specifically bibliometric analysis, to investigate the influence of e-commerce platforms on market access for informal enterprises in developing countries from 2006 to 2025. Bibliometrics has become increasingly prominent due to its ability to handle large amounts of scientific data and evaluate research impact, facilitated by accessible tools such as R and VOSviewer, along with extensive databases like Google Scholar, Scopus, and Web of Science (Passas, 2024). Bibliometric analysis is a research method that evaluates academic publication outputs, usually obtained from databases such as Web of Science or Scopus, to explore global trends in a particular field (Alsharif et al., 2020).

Firstly, the study employed the bibliometrix R-package to conduct a bibliometric analysis of the literature concerning e-commerce platforms and market access for informal enterprises in developing countries. This open-source tool, developed in the R programming language, is particularly effective for performing comprehensive science mapping analysis (Aria and Cuccurullo, 2017). The strength of the system is attributed to its comprehensive library of effective statistical techniques, seamless integration with data visualisation tools, and access to high-quality numerical routines, enabling robust scientific computations (Aria and Cuccurullo, 2017). The bibliometrix R-package has been effectively utilised in similar bibliometric analyses and systematic review studies (Bach and Hoang, 2025; Cano et al., 2022).

Secondly, the bibliometric analysis utilised data primarily obtained from the Web of Science Core Collection database with focus on Social Sciences Citation Index (SSCI), Science Citation Index Expanded (SCI-EXPANDED) and Conference Proceedings Citation Index – Science (CPCI-S). This study developed a specific search string utilising established keywords for literature search. The terms were combined using the Boolean operators "OR" and "AND," consistent with standard practice (Atkinson and Cipriani, 2018). The primary search terms comprised: e-commerce platforms, informal enterprises, market access, developing countries, digitalisation, and bibliometric analysis. This refined combination of keywords was developed to yield a targeted and pertinent set of results for our study. This was further narrowed to focus on e-commerce platforms, informal enterprises, market access, developing countries, and digitalisation. This gives the search string TS=(("e-commerce platform*" OR "digital marketplace*" OR "online marketplace*" OR "informal enterprise*" OR "digitali*ation") AND ("developing countr*" OR "informal enterprise*")). This yielded 367 records.

Next, the bibliographic information obtained from our search strategy was subjected to a thorough screening process to confirm compliance with our established inclusion criteria. Eligible studies included articles and conference papers that were pertinent to the study's topic and published in English from 2006 to 2025. This study excluded publications that were not in English, fell outside the specified timeframe, or were classified as editorial materials, early access publications, books, retractions or retracted publications or any other types deemed unrelated to the study's objectives. After the screening process, 339 studies were identified f

further data analysis. Lastly, the chosen bibliographic data, in plain text format, were imported into the bibliometrix tool in RStudio. This enabled the extraction of pertinent network data and descriptive statistics from the analysed

articles. The results of this analysis, which include network visualisations and descriptive data, were systematically presented and explained to enhance clarity and comprehension

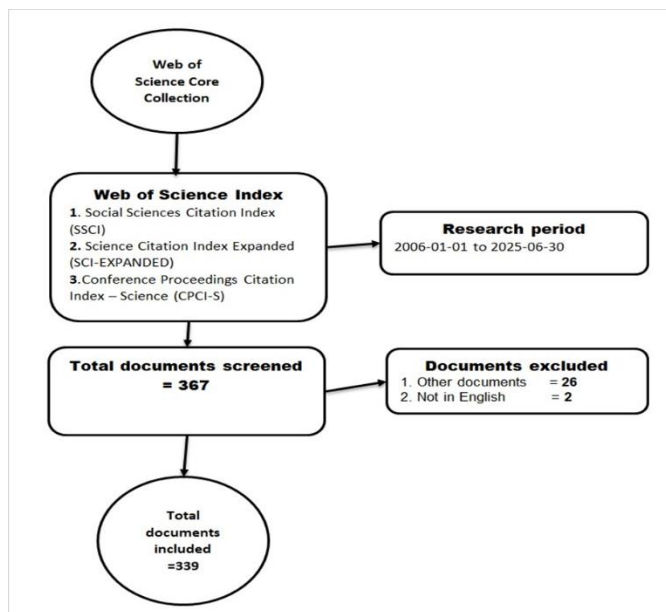


Figure 1: Summary of the steps undertaken during the bibliometric analysis (Source: Compiled by authors (2025))

3. RESULTS

3.1 Overview of Data Set

3.1.1 Annual Scientific Production

Figure 2 shows the annual scientific production on the relationship between e-commerce platforms and market access for informal businesses in developing economies. The productivity pattern between 2006 and 2017 is small and fluctuating, indicating that early years received little scholarly attention. However, there has been a discernible and consistent rise in publications since 2018, indicating a growing interest in the subject among academics. This interest is probably being fuelled by the globalisation of digital technologies and their perceived

advantages in enhancing market accessibility and company efficiency (Kim, 2020). The COVID-19 pandemic's digital acceleration and the growing movement for digital inclusion in the Global South, may have contributed to the increased research trend peaked around 2023 to 2024, as suggested by earlier study (Mustafa et al., 2022; Ihnissi and Klaib, 2021). The substantial drop in observed 2025 could be the result of either a natural lag in publishing cycles or insufficient data for the year. Interestingly, the increasing scholarly attention overlaps with policy and development discussions about informal economies, which although often perceived as a barrier to sustainable development, remain critical to employment and livelihoods in low-income countries (Sultana et al., 2022).

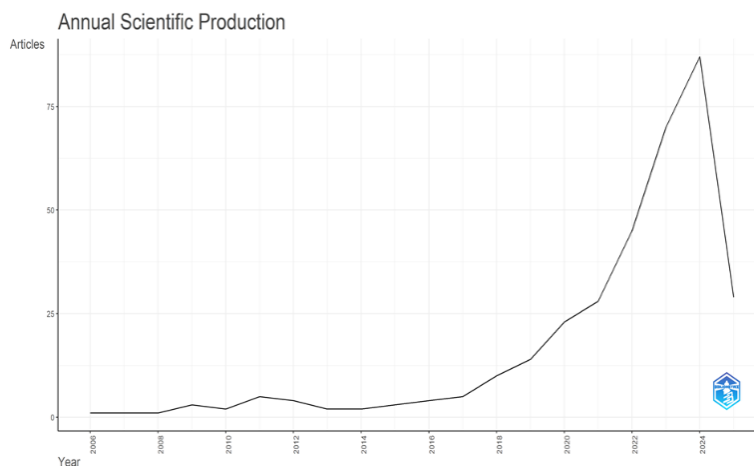


Figure 2: Annual scientific production (Source: Generated by authors (2025))

3.1.2 Average Citation Per Year

Figure 3 illustrates the average number of citations per year for articles related to e-commerce platforms and informal enterprises in developing countries 2006 and 2025, the data displays unstable citation trend with notable peaks in 2013 and 2020. These surges indicate that the topic received more scholarly attention during pivotal times, most likely due to increased interest worldwide in digital transformation and its significance in economic development as shown in the literature (Haryanti and Subriadi, 2020). Interestingly, a wider acceptance of e-commerce as a means of accessing markets may be reflected in the notable spike in citations around 2020, particularly during the COVID-19 pandemic when digital platforms became crucial for business continuity (Mustafa et al.,

2022; Ihnissi and Klaib, 2021). This tendency is consistent with the larger discussion about digitisation and the change of the economy in developing nations. For example, some researchers noted that although these countries aim to emulate the industrial prosperity of developed economies, they are increasingly depending on digital innovations, including e-commerce, to promote inclusive growth (Matthess and Kunkel, 2020). Persistent challenges, however, prevent broad adoption and influence. For instance, despite the availability of digital platforms, women entrepreneurs frequently encounter systemic obstacles such as restricted finance and gender-based limitations (Setini et al., 2020). These limitations can reduce e-commerce's ability to expand market access and could account for some of the variations in citation activity over time. A revived interest in the subject is evident from the sharp rise in citations

around 2020–2022, which may have been prompted by the global pandemic that sped up the use of digital technology and e-commerce platforms. This increase in interest is also in line with the increasing awareness that e-commerce platforms must have inclusive design to solve usability and accessibility problems, especially for under-represented consumers (Gonçalves et al., 2018). The last drop in citations towards

2024-2025 might be a sign that the subject area is maturing, with core knowledge established and research becoming more specialised or focused on certain facets of market access and e-commerce. The variations in citations are indicative of larger scholarly and policy discussions on economic transformation, digitalisation, and the difficulties of formalising informal economic activity.

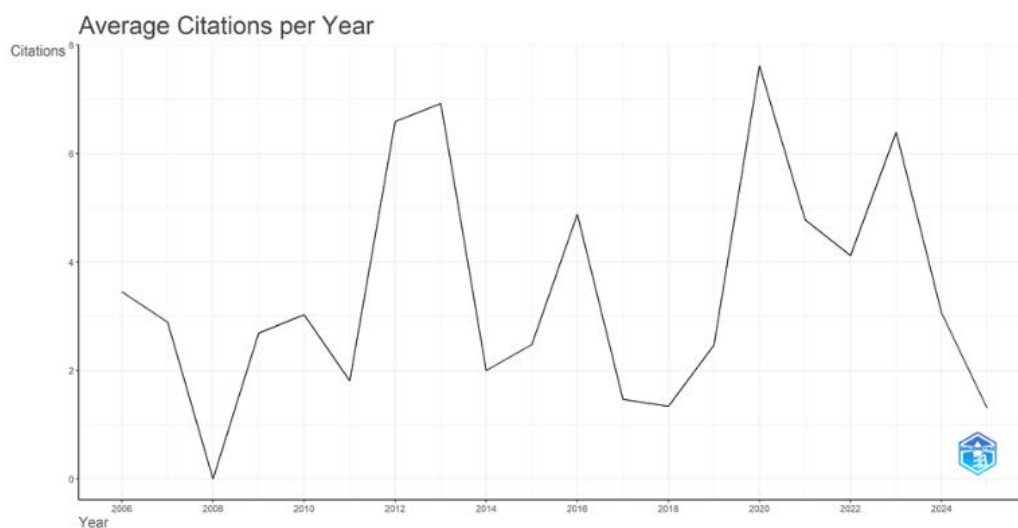


Figure 3: Sowing average article citation per year (Source: Generated by authors, 2025)

3.2 Analysis of Sources

3.2.1 Most Relevant Sources

Table 1 shows a descriptive analysis of the top ten most relevant sources of literature on e-commerce platforms and market access for informal enterprises in developing economies (2006–2025). Sustainability has the most publications (n = 31), which is indicative of the journal's multidisciplinary focus on digital inclusion and sustainable development. Its dominance demonstrates how academics are beginning to see e-commerce as a means of achieving sustainable and inclusive economic involvement in the informal sector.

Other well-known journals that examine how environmental and technological elements affect digital market ecosystems are Heliyon (n =

7), Environmental Science and Pollution Research (n = 6), and Technological Forecasting and Social Change (n = 6). The existence of technology in society (n = 5) and telecommunications policy (n = 6) highlights how crucial digital infrastructure and governance are in determining platform accessibility for unorganised businesses. Furthermore, increased concern about the environmental impact of digital commerce is reflected in journals such as Frontiers in Environmental Science (n = 5) and Journal of Cleaner Production (n = 5). Lastly, there is interest in how e-commerce promotes entrepreneurship and market access in underserved and low-income regions, as indicated by Economic Analysis and Policy (n = 4) and Entrepreneurship and Regional Development (n = 4). This diversity confirms the field multidisciplinary relevance.

Table 1: Descriptive analysis: top 10–most relevant sources

Descriptive analysis: top 10–most frequent sources		
No	Sources	Articles
1	Sustainability	31
2	Heliyon	7
3	Environmental Science and Pollution Research	6
4	Technological Forecasting and Social Change	6
5	Telecommunications Policy	6
6	Frontiers in Environmental Science	5
7	Journal of Cleaner Production	5
8	Technology in Society	5
9	Economic Analysis and Policy	4
10	Entrepreneurship and Regional Development	4

Source: Generated by authors (2025)

3.2.2 Most Relevant Sources

Table 2 presents a descriptive analysis of the top ten authors who have written about e-commerce platforms and market access for informal businesses in developing nations. The most productive contributors are tied with six authors: Ali Y. (n = 3), Khan S. (n = 3), Meagher K. (n = 3), Oke A.E. (n = 3), Avenyo E.K. (n = 3), and Aigbavboa C.O. (n = 3). Their frequent appearance indicates ongoing scholarly interest in topics like informality,

digital accessibility, and the socioeconomic dynamics of e-commerce in developing nations. A robust second tier of active authors spanning diverse regional and thematic contexts is indicated by the further noteworthy contributions of Aquila-Natale E. (n = 2), Addo A. (n = 2), Ahmed A. (n = 2), and Ali Q. (n = 2). These authors have together enhanced the academic debate by discussing infrastructure, legislation, digital literacy, and entrepreneurship, all of which are essential to maximising the potential of e-commerce for informal enterprises.

Table 2: Descriptive analysis: top 10–most relevant authors

Descriptive analysis: top 10–most relevant Authors		
No	Authors	Articles
1	Aigbavboa C.O.	3
2	Ali Y.	3
3	Avenyo E. K.	3
4	Khan S.	3
5	Meagher K.	3
6	Oke A. E.	3
7	Acquila-Natale E.	2
8	Addo A.	2
9	Ahmed A.	2
10	Ali Q.	2

Source: Generated by authors (2025)

3.2.3 Most Relevant Affiliations

Table 3 presents a descriptive analysis of the ten most pertinent institutional affiliations that contributed to the literature on e-commerce platforms and the market access of informal businesses in developing nations between 2006 and 2025. Leading the way with a significant output (n = 23) is the University of Johannesburg, highlighting its strong emphasis on development studies, digital transformation, and informal economies, topics essential to comprehending how e-commerce platforms impact market access in low-income contexts. The University of London comes in second with eight articles (n = 8), most likely from the standpoint of international development and policy. Strong regional interaction in

Southeast Asia, where digital commerce has rapidly evolved and inspired informal entrepreneurship, is highlighted by other noteworthy connections including Universiti Sains Malaysia (n = 6), Zhejiang University (n = 6), and Universitas Padjadjaran (n = 5). Cross-continental interest is shown by European universities as the University of Turin (n = 5), Autonomous University of Madrid (n = 4), and Centre National de la Recherche Scientifique (CNRS) (n = 4). E-commerce's importance in expanding access to rural and informal agricultural markets is further supported by the inclusion of CGIAR (n = 4), a global agricultural research alliance. However, there are notable geographical differences in scholarly interest, as seen by the low participation from Latin American and other African institutions outside of South Africa.

Table 3: Showing descriptive analysis: top 10–most relevant affiliations

Descriptive analysis: top 10–most relevant affiliations		
No	Affiliation	Articles
1	University of Johannesburg	23
2	University of London	8
3	Universiti Sains Malaysia	6
4	Zhejiang University	6
5	Universitas Padjadjaran	5
6	University of Turin	5
7	Autonomous University of Madrid	4
8	Centre National De La Recherche Scientifique (Cnrs)	4
9	Cgiar	4
10	Delhi Technological University	4

Source: Generated by authors (2025)

3.2.4 Most Relevant Countries Based on Corresponding Author Collaboration

The ten most pertinent nations are shown in Figure 4 according to corresponding author collaboration in the areas of market access and e-commerce platforms for unofficial businesses in developing nations between 2006 and 2025. China is by far the leader with the greatest number of single-country publications (SCP), suggesting that e-commerce is a major area of domestic research interest. This prominence reflects China's actual use of digital platforms to facilitate the integration of rural markets, where e-commerce logistics have allowed farmers to get around regulatory and infrastructure barriers and reach a wider range of markets (Li and Zhang, 2024). A group of researchers further illustrated this effect by noting that Chinese farmers are increasingly using big data tools provided by e-commerce platforms to improve decision-making (Zeng et al., 2024). This strategy has attracted a lot of scholarly attention and probably helped to increase the volume of research outputs. The UK and India come in second and third, respectively, with significant levels of single-country and

multiple-country publications (MCP), indicating active international cooperation in addition to domestic initiatives. This trend reflects the increased awareness of the impact of digital technologies on informal markets around the world. The need to contextualise digital transformation in various informal sector environments is probably what motivates the balanced presence of SCP and MCP in South Africa and Pakistan, which highlights both domestic scholarship and cross-border partnerships. Presence of developed countries like the USA, Australia, and Germany which are not the common settings for informal enterprises are not the main locations for informal businesses, suggest their research engagement is often collaborative, supporting comparative or policy oriented studies. As some researcher noted, the global development discourse, has progressively moved towards assessing the role of digitalisation rather than traditional industrial models as a feasible avenue for economic advancement in developing countries (Matthess and Kunkel, 2020). Furthermore, these countries' favourable policy environments, infrastructure, and support networks facilitate the development of solid research on market access issues (Munaiseche et al., 2022).

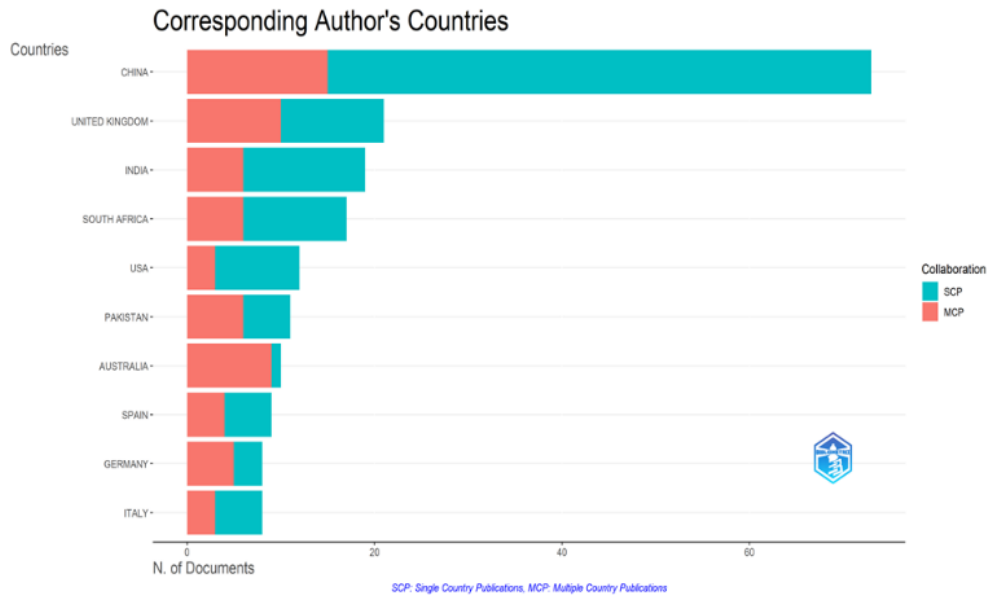


Figure 4: 10 most relevant countries based on corresponding author collaboration (Source: Generated by authors, 2025)

3.3 Analysis of Articles

3.3.1 Most Globally Cited Articles

Table 4 presents a descriptive analysis of the top 10 most widely cited articles in the field of e-commerce platforms and market access of informal companies in developing nations between 2006 and 2025. Biggs et al. (2012, n=262)'s article is the most cited. It examines how resilient formal and informal tourism businesses are to disasters, emphasising the adaptability and vulnerability of informal businesses in unstable environments; a topic that is extremely pertinent to digital market access. Through the lens of managerial behaviour and technical paradoxes, Guo et al. (2023; n=207), study how digital transformation affects company performance and highlight the challenges faced by informal companies when they engage in e-commerce. A number of studies, including Tang and Zhu (2020; n=147) and Matthess and Kunkel (2020; n=136) emphasise structural and developmental changes made possible by e-commerce

platforms, offering firsthand insights into how digitalisation is changing the rural and informal sectors, especially in China. The socio-institutional context that influences market involvement is further supported by Williams and Shahid's (2016; n=166) investigation of different degrees of informality. Chant's (2013, n=152) analysis highlights gender issues and serves as a reminder that structural inequality in informal marketplaces must be addressed by technology solutions. Kittipanya-ngam and Tan (2020; n = 182), Gillani et al. (2020; n = 134), and Du et al. (2023; n = 123) are included to further highlight the increasing importance of technological capability, digital infrastructure, and innovation to informal businesses using digital methods to access broader markets. Recent publications like Guo et al. (2023) and Du et al. (2023) stand out with citation velocities of 69.00 and 41.00 TC/year, respectively, indicating a growing interest among scholars in the performance consequences of digital transformation.

Table 4: Descriptive analysis: top 10–most global cited article

Descriptive analysis: top 10- most global cited article			
No.	Paper	Total Citations	TC per Year
1	Biggs et al., 2012, J Sustain Tour	262	18.71
2	Guo et al., 2023, J BUS RES	207	69.00
3	Kittipanya-ngam & Tan, 2020, Prod Plan Control	182	30.33
4	Williams & Shahid, 2016, Entrep Region Dev	166	16.60
5	Chant S, 2013, Environ Urban	152	11.69
6	Tang & Zhu, 2020, J Rural Stud	147	24.50
7	Matthess & Kunkel, 2020, Technol Soc	136	22.67
8	Gillani et al., 2020, Int J Prod Econ	134	22.33
9	Billon et al., 2009, Telecommun Policy	131	7.71
10	Du et al., 2023, Energ Econ	123	41.00

Source: Generated by authors (2025)

3.3.2 World Cloud Analysis

Figure 5 presents a word cloud analysis of keywords used in publications related to e-commerce platforms and market access for informal enterprises in developing economies from 2006 to 2025. The most common term, "digitalisation," highlights how important digital technologies are in determining market access, particularly in informal economies. This prominence attests to the growing recognition in academic discourse of the revolutionary potential of digital tools in closing gaps in the market. According to a study, digital technologies have transformed international trade by lowering transaction costs, improving supply chain transparency, and opening up new avenues for consumer-

business interaction (Costa and Castro, 2021). These elements are especially important for unofficial businesses looking to expand their market integration. Additional commonly used phrases like "innovation," "technology," "developing countries," and "informal sector" serve to further emphasise the theme of digital access and systemic change. The inclusion of words like "performance," "entrepreneurship," and "growth" is noteworthy since it highlights the apparent connection between digital adoption and better business outcomes for under-represented businesses. Nonetheless, the development of digital skills is still essential for the realisation of such potential. According to a study, the majority of employees in the unorganised sector have only rudimentary digital skills and need specialised training to advance into more competitive professions in the digital sphere, such as cybersecurity and analytics

(Intaratat, 2022). Additionally, the use of terms like “management,” “impact,” “sustainability,” and “digital divide” indicates awareness of the larger e-commerce ecosystem in developing nations. In developing nations, where digital literacy and infrastructure are still in their infancy,

these findings support the need for organised initiatives. For example, recommend focused digital training, easily available technology, and policy frameworks based on local realities of SMEs in Sierra Leone (Monson and Macauley, 2024).



Figure 5: Word cloud analysis by all key words (Source: Generated by authors 2025)

3.3.3 Conceptual Structure: Thematic Evolution by Keywords Plus

Figure 6 shows the thematic evolution of keywords related to the study of e-commerce platforms and how they affect informal businesses' access to markets in developing nations between 2006 and 2023 and 2024 and 2025. This conceptual structure map illustrates how research has evolved throughout time, focusing on new areas and trends. Important themes including “cities,” “e-government,” “education,” “financial development,” “poverty,” “social media,” and “technology” emerged throughout the 2006–2023 timeframe, indicating a widespread interest in the fundamental components that support market access and economic growth. According to the focus on “technology” at this time highlights its crucial role in changing global markets by improving supply-chain efficiency and establishing closer ties between consumers and organisations (Costa and Castro, 2021).

As the study landscape changes into the 2024–2025 timeframe, themes

including “acceptance,” “employment,” “experience,” “framework,” “technology,” and “mobile money” are becoming more prevalent. This shift indicates that the significance of customer adoption and the enabling factors that propel e-commerce engagement are becoming increasingly acknowledged. For example, the emphasis on “acceptance” and “experience” is consistent with research showing that simplicity of use and knowledge of the advantages of e-commerce are the main factors driving customer adoption, with perceived risk and trust also being important factors (Mustafa et al., 2022). Furthermore, “mobile money” has emerged as a major subject, underscoring the growing importance of digital financial solutions in expanding informal businesses' access to markets, especially in areas with potentially deficient traditional banking infrastructure. The transition from fundamental components to more focused, customer-focused aspects reflects a developing field that is becoming more aware of the intricate relationships among technology, consumer behaviour, and market access.

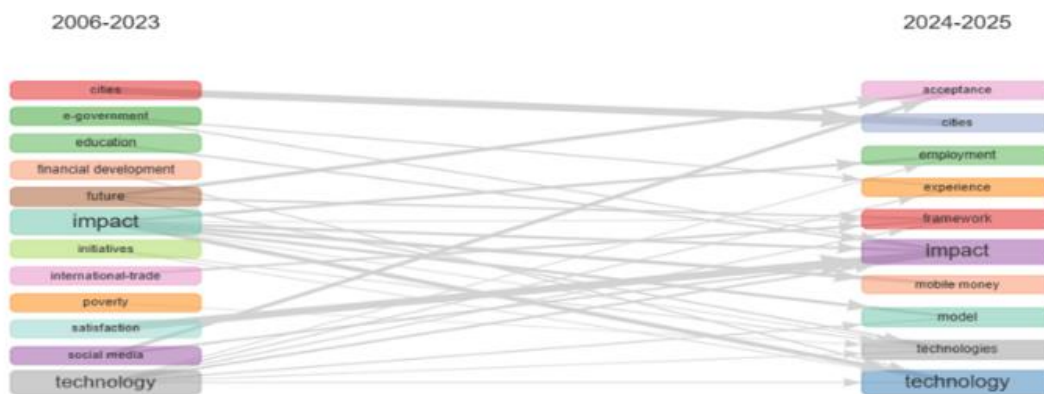


Figure 6: Conceptual structure: thematic evolution by keywords plus (Source: Generated by authors (2025))

3.3.4 Analysis of Intellectual Structure: Co-Citation Network by Sources

Figure 7 illustrates the intellectual structure of the study on e-commerce platforms and how they affect market access of informal enterprises in developing economies, through co-citation network of sources. The graph demonstrates how many fields of study add to a larger understanding of this discipline by highlighting the connections between numerous scholarly sources and themes. Each cluster in the network represents a different theme within the study environment. These clusters'

interdependence emphasises the need for a multidisciplinary approach to properly comprehend and handle the opportunities and problems posed by e-commerce platforms in emerging nations. Researchers can identify important areas of concentration and possible gaps in the literature by looking at the co-citation network. This will help direct future research efforts to further study the intricate interactions between social, economic, and technological aspects in enhancing market access for informal companies.

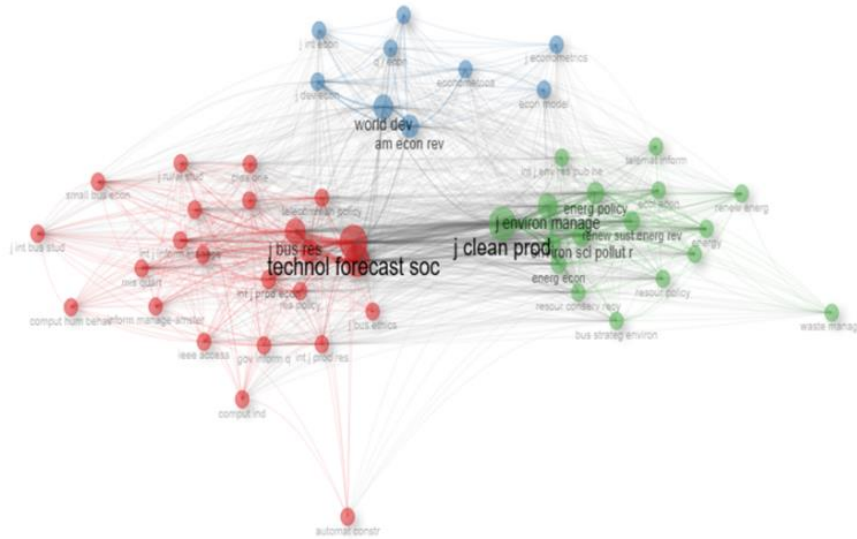


Figure 7: Intellectual structure: co-citation network by sources (Source: Generated by authors (2025))

3.3.5 Analysis of Social Structure: Collaboration Network by Countries

Figure 8 shows the international collaboration patterns among academics looking into e-commerce and market access of informal enterprises in developing countries, which shows both encouraging relationships and significant gaps. Strong Asian engagement in the network, especially from China, is consistent with findings that China is leading the way in the adoption of e-commerce among unofficial enterprises, including farmers using big data techniques (Zeng et al., 2024). Even if these Asian countries face similar challenges in digital transformation, the lack of cooperation between them and their African (like Kenya) or Latin American (like Peru) allies shows regional silos in research efforts (Matthess and Kunkel, 2020).

The lack of participation of least-developed nations indicates a serious imbalance, while the inclusion of European nations (such as Poland and Romania) as secondary contributors emphasises cross-continental knowledge exchange. This disjointed network of collaborations reflects larger discussions on unequal access to research on the digital economy, as nations with developed e-commerce ecosystems dominate academic discourse while those with more extensive informal sectors (but fewer research infrastructure) stay on the periphery. Enhancing triangular and South-South collaborations could help close this gap and guarantee that knowledge gained from China's e-commerce breakthroughs informs solutions tailored to the needs of other developing nations facing comparable obstacles to market entry (Zeng et al., 2024).

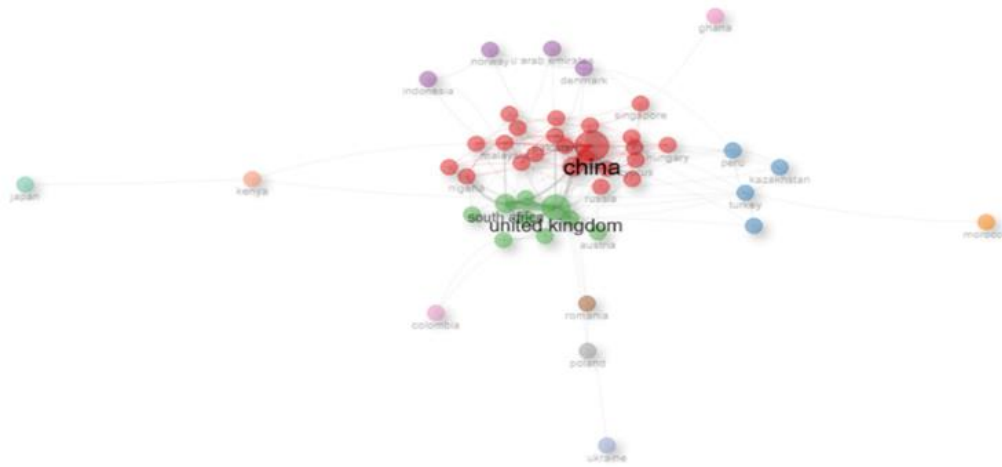


Figure 8: Social structure: Collaboration by countries (Source: Generated by authors (2025))

4. DISCUSSIONS

The results of this bibliometric analysis offers valuable insights into the evolving landscape surrounding e-commerce platforms and their influence on market access for informal enterprises in developing countries. Rather than just gathering statistical trends, the data shows a notable increase in scientific interest from 2018, reaching a high in 2023 and 2024. The global push towards digitisation and the pressing need for development to integrate informal businesses into formal market frameworks seem to be reflected in this increase in scholarly output. Importantly, this increase in scholarly attention reflects a deeper change in development thinking, where e-commerce is increasingly acknowledged as a means of achieving inclusive economic participation, rather than only being a reaction to technology developments (Kim, 2020; Mustafa et al., 2022). The frequent appears of journals like Sustainability and the emergence of six authors as active contributors points to a maturing academic discourse that connects topics of informality, sustainability, and digital access. The notion that digital platforms are not just technological advancements but also vital socioeconomic instruments for marginalised businesses is supported by the increasing scholarly interest in this topic (Sultana et al., 2022).

Beyond academic interest, the findings have significant implications for policy and practice in developing nations. The increased focus on e-commerce platforms in research shows how they can open up new avenues for market access and get around conventional limitations like infrastructural deficiencies and geographic distance. The fact that "digitalisation" was found to be a dominant keyword indicates that people are becoming more aware of how digital technologies can lower transaction costs and increase supply chain transparency, two important benefits for unofficial firms looking to grow (Costa and Castro, 2021). Furthermore, the current focus on phrases like "mobile money" and "customer experience" indicates a change in emphasis from infrastructure to the behavioural and psychological elements of digital commerce (Mustafa et al., 2022). This change emphasises the fact that informal businesses need more than simply digital access; they also need the knowledge, abilities, and self-assurance to use these tools skilfully. Nonetheless, the scant scholarly cooperation and citation contributions from the least developed nations highlight significant disparities in research representation and equity. This under-representation indicates that more inclusive and context-specific digital solutions are urgently needed (Matthess and Kunkel, 2020). Encouraging stronger regional and South-South academic partnership could help ensure that local solutions

are integrated into broader development strategies (Zeng et al., 2024).

The study's findings are highly consistent with previous research acknowledging the revolutionary potential of digitalisation for informal businesses. The significant jump in citations during the COVID-19 pandemic period is consistent with earlier research that found digital technologies are essential for business survival and flexibility in the face of global disruptions (Haryanti and Subriadi, 2020; Ihnissi and Klaib, 2021). Furthermore, the grouping of themes like "technology," "entrepreneurship," and "performance" supports previous research that links the adoption of digital technology to increases in business competitiveness and productivity (Zeng et al., 2024; Costa and Castro, 2021). The large number of Chinese publications adds credence to the findings of who observed that Chinese rural firms were able to overcome market entry barriers by leveraging digital platforms and big data (Li and Zhang, 2024). Despite geographical variations, these similarities imply that digital technologies are becoming more and more important to the growth of the unorganised sector in many different regions. The wider scholarly focus on digital literacy and skills is also consistent with research showing that workers in the unorganised sector must be given the skills necessary for meaningful digital engagement (Intaratat, 2022; Monson and Macauley, 2024).

However, this analysis also yields a number of novel discoveries that either expand upon or contradict preexisting understandings. For example, whereas the literature regularly emphasises the challenges faced by informal businesses, this research reveals varying trends in citations as well as a decline in more recent years. This might point to a developing field of study, where academic research is becoming more specialised and concentrated on particular facets of e-commerce and market access, rather than a drop in interest. Furthermore, although the study affirms the significant contributions of Asian researchers, it also highlights the lack of cooperation between Asian and African or Latin American scholars, which is a sign of regional silos in the exchange of knowledge (Matthess and Kunkel, 2020). A lost chance to use effective models from one region, like China, to guide solutions in countries with comparable structures is suggested by this lack of South-South engagement (Zeng et al., 2024). Additionally, despite the fact that previous research frequently emphasises the value of government assistance and infrastructure, the area is fundamentally multidisciplinary, according to the intellectual structure uncovered by co-citation analysis (Guo et al., 2022). This complexity suggests an integrated strategy that takes into account social, economic, and technological aspects is required to successfully handle the difficulties and maximise the potential of digital platforms for informal enterprises.

5. CONCLUSIONS

5.1 Summary of Findings

This study presents a comprehensive bibliometric review of the published academic literature on e-commerce platforms and market access for informal enterprises in developing countries from 2006 to 2025. The results show a consistent increase in scholarly output over the previous 20 years, with a notable uptick starting in 2018. The high-performing countries, authors, and institutions are geographically distributed and those low-income economies all contribute little. The research themes have gone through transformation from the basic concepts such as ICT adoption, informality to the emerging themes such as digital entrepreneurship, mobile money and customer experience. Articles that link digitisation to performance, resilience, and rural development are highly referenced, indicating an increase in multidisciplinary interest. Informal businesses are becoming more and more prominent in conversations about innovation, inclusivity, and economic transformation through e-commerce, according to co-occurrence and keyword analysis. Even with the growing number of publications, there are still a lot of gaps in context-specific research, particularly when it comes to the viewpoints of informal businesses.

5.2 Theoretical Contribution

First, this study establishes a conceptual link between development studies and digital entrepreneurship by illustrating how the digitalisation of informal enterprises fosters inclusive growth, job creation, and economic transformation in developing countries. Secondly, it enhances the ongoing discourse on informality by demonstrating how digital platforms are enabling novel forms of market integration that operate beyond traditional avenues of business formalisation. Thirdly, the research enhances digital transformation theories by identifying and contextualising essential variables, including infrastructure readiness, digital literacy, and institutional support, which influence the accessibility and effectiveness of e-commerce adoption among informal actors. Finally, the study enhances our theoretical understanding of e-commerce by

conceptualising it as a socio-economic enabler rather than solely a technological advancement, providing insights for informal enterprises in under-represented regions with new opportunities for market access and resilience.

5.3 Policy Implications

Firstly, governments should prioritise the development and expansion of affordable, inclusive, and reliable digital infrastructure tailored to the specific needs of informal enterprises, particularly in rural and marginalised urban areas. This encompasses the expansion of broadband coverage, enhancement of mobile internet access, and support for local digital service providers. Secondly, donor agencies and international development partners should fund and implement targeted digital literacy and capacity-building programs to empower informal entrepreneurs and their employees with the necessary skills for effective use of e-commerce platforms. Efforts must be contextualised to local conditions, consider gender dynamics, and include businesses owned by youth and women. Thirdly, government institutions and regulatory bodies ought to streamline registration and compliance processes for informal businesses aiming to engage in the digital economy. This may encompass integrated digital registration platforms, tax incentives for digital adoption, and the establishment of microfinance schemes or credit facilities designed to meet the specific needs of informal enterprises. Fourthly, investors and private sector entities are urged to actively support informal digital entrepreneurship through the provision of flexible financing models, impact investments, and collaborations with digital platforms that cater to low-income entrepreneurs. Public-private partnerships are essential for enhancing e-commerce inclusion. Finally, it is essential to incorporate informal enterprise owners and employees into policy dialogues and co-design processes, ensuring that interventions accurately address their needs, constraints, and aspirations within the digital marketplace. Granting these actors voice and visibility is essential for the sustained success of inclusive digital transformation strategies.

5.4 Future Research Directions

This bibliometric analysis identifies several critical avenues for future research to deepen understanding of e-commerce's role in enhancing market access for informal enterprises in developing countries. Firstly, to address the research gap identified in this study, especially in comparison to other countries, it is essential for researchers from developing economies in Africa and Latin America to conduct context-specific studies into the impact of e-commerce platforms on market access for informal enterprises. Secondly, researchers should investigate the impact of emerging digital technologies, including artificial intelligence, block chain, and digital identity systems, on advancing inclusion, innovation, and transformation for informal businesses in developing economies. Thirdly, there is a significant need for mixed-method research designs that combine quantitative analyses of performance indicators with qualitative insights into the behavioural, gender, and cultural factors affecting digital participation. Next, comparative studies across regions, income levels, and policy environments would yield deeper insights into the impact of institutional support, or its absence, on the success of e-commerce adoption. Finally, longitudinal studies are necessary to investigate the impact of sustained use of e-commerce platforms on the visibility, competitiveness, and long-term viability of informal enterprises.

5.5 Limitations of the Study

The study has the following limitations. First, this study relies predominantly on bibliometric data sourced from the Web of Science Core Collection, potentially constraining the analysis by omitting grey literature and regionally important yet non-indexed publications. Secondly, the predominantly quantitative approach of bibliometric analysis may inadequately reflect the complex realities, motivations, and challenges encountered by informal entrepreneurs in the adoption of e-commerce platforms. Third, the temporal scope of the study, which includes publications from 2006 to 2025, may not adequately address emerging developments in digital policies, technological trends, or enterprise behaviours that are expected to evolve rapidly beyond the study period. Finally, limited representation of least-developed countries in the dataset constrains research inclusiveness and generalisability, underscoring the necessity for more diverse and context-sensitive contributions to scholarly discourse.

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CONTRIBUTIONS

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