

## MAPPING HUMAN CAPITAL, SOCIAL CAPITAL, AND WELL BEING IN INFORMAL SELF EMPLOYMENT: A BIBLIOMETRIC STUDY

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### Abstract

*This study aims to map the development of scientific research on human capital, social capital, and the well-being of self-employed workers in the informal sector during the period 2015–2025. Employing a bibliometric approach based on Scopus data, this study analyses 102 scientific documents through indicators of annual publication output, country contribution, institutional affiliation, citation level, co-authorship collaboration networks, and keyword co-occurrence using VOSviewer software. The analysis reveals a significantly upward publication trend, particularly in 2024 and 2025. China, the United Kingdom, and Indonesia are recorded as the countries with the highest publication contributions. The most cited article is the work of Prasetyo & Kistanti (2020), which comprehensively integrates human capital, social capital, and entrepreneurship as pillars of sustainable economic growth. Co-authorship network analysis indicates fragmented collaboration patterns, while keyword co-occurrence mapping identifies four main thematic clusters: (1) well-being and entrepreneurship; (2) social capital and human capital; (3) livelihood and the informal sector; and (4) knowledge and sustainable development. These findings suggest the need to strengthen cross-country research collaboration and to expand inquiry into the interaction between human capital and social capital in enhancing the well-being of self-employed workers in the informal sector, particularly in developing countries. This study contributes to the literature by providing an integrated bibliometric overview of how human capital and social capital are positioned in relation to the well-being of self-employed workers in the informal sector.*

**Keywords:** *Human Capital, Social Capital, Well-being, Self-employed Workers, Informal Sector*

### 1. INTRODUCTION

The informal sector represents a vital component of the employment structure in developing countries, encompassing a significant portion of the workforce that remains unprotected by formal regulations and adequate social welfare systems (Holt & Littlewood, 2017). Self-employed workers operating in the informal sector face structural challenges, including limited access to financial capital, technology, and social networks required to enhance their productivity and well-being (Mehtap et al., 2019). In this context, human capital and social capital have been identified as two synergistic determinants influencing

the adaptability, innovation, and business sustainability of self-employed workers in the informal sector.

Human capital encompasses the dimensions of knowledge, skills, and individual capabilities acquired through formal education and work experience (Chitsaz et al., 2019; Prasetyo & Kistanti, 2020). A growing body of empirical evidence indicates that investment in human capital significantly enhances the productivity and income of self-employed workers, particularly through digital technology adoption and business diversification (Cheng et al., 2024; Chitsaz et al., 2019). Social capital, representing the values of trust, collective norms, and relational social networks, plays a crucial role in facilitating access to information, market opportunities, and collective resources that constitute the foundation for the continuity of informal-sector enterprises (Laila et al., 2025; Zhao & Li, 2021).

The well-being of self-employed workers is a multidimensional construct encompassing economic, psychological, and social aspects (Peters et al., 2019). From an informal-sector perspective, well-being is measured not only through income indicators but also through quality of life, work autonomy, livelihood resilience, and social integration within communities (Huang et al., 2023; Peters et al., 2019). The interaction among human capital, social capital, and the well-being of self-employed workers has emerged as a research issue gaining increasing attention in the literature on entrepreneurship, development economics, and global employment policy.

Despite the growing literature on these three constructs, limited bibliometric studies have systematically integrated human capital, social capital, and well-being within the specific context of self-employed workers in the informal sector. Bibliometric studies enable the identification of patterns of scientific development, productive authors and institutions, collaboration trends, and thematic clusters that shape the research landscape of a given field (Rostini & Ergicho, 2025). Accordingly, the present study addresses an important gap in the literature by providing a structured research map intended to guide academics, practitioners, and policymakers.

This study aims to: (1) analyse trends in scientific publications on human capital, social capital, and the well-being of self-employed workers in the informal sector during the 2015–2025 period; (2) identify the most productive countries, institutions, and authors; (3) examine articles with the highest citation impact; (4) map co-authorship collaboration networks; and (5) identify thematic clusters through keyword co-occurrence analysis.

## 2. RESEARCH METHOD

This research adopts a bibliometric approach to map and analyse the scientific literature related to human capital, social capital, and the well-being of self-employed workers in the informal sector, adapting the bibliometric framework proposed by Rostini & Ergicho (2025) to examine publication patterns, collaboration networks, and knowledge development dynamics.

Publication data were obtained from the Scopus database, selected for its comprehensive coverage of high-reputation international journals and its standardised metadata quality. Data retrieval was conducted using an advanced search strategy on the title, abstract, and keyword fields (TITLE-ABS-KEY) with a combination of keywords including: “human capital” OR “*human resource*” OR *skill*\* OR *competenc*\* OR *knowledge* OR *capability*; “social capital” OR “social network\*” OR “social relation\*” OR

“community network\*” OR trust; “well-being” OR wellbeing OR welfare OR “quality of life” OR livelihood OR income; and “self-employed” OR “self employment” OR entrepreneur\* OR “informal sector” OR “informal worker\*” OR “informal employment”. The search was limited to the 2015–2025 period, journal-article document type, and English language.

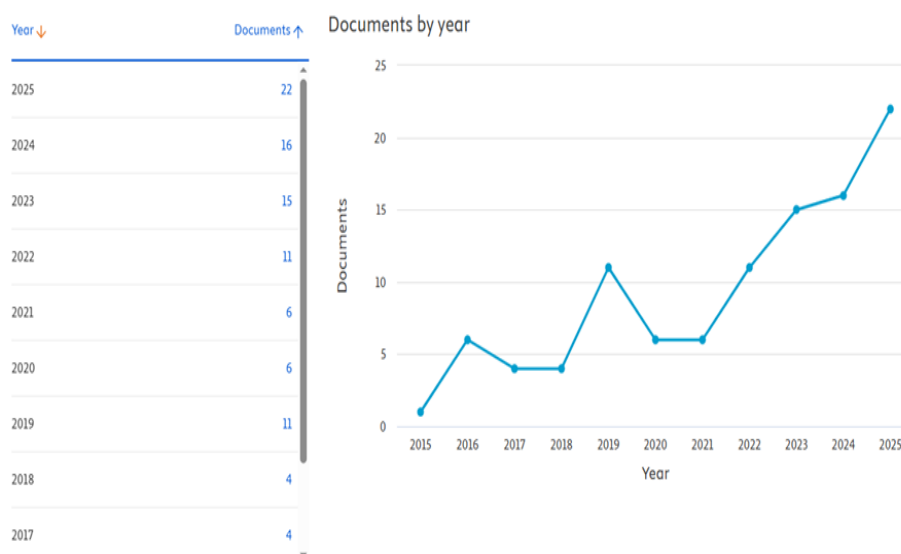
After the selection and screening process, 102 relevant scientific documents were obtained. The bibliometric analysis was conducted through two main approaches: (1) quantitative descriptive analysis of bibliometric indicators using Scopus analytical features, including publication distribution per year, country contribution, institutional affiliation, and citation level; and (2) network visualization analysis using VOSviewer software, which facilitates co-authorship network mapping and keyword co-occurrence analysis to identify thematic clusters in the literature.

### 3. RESULT

#### 3.1. Annual Publication Trends

Analysis of annual publication trends reveals a dynamic growth pattern over the 2015–2025 period, as illustrated in Figure 1. According to Scopus data, the number of publications increased gradually from one article in 2015 to 6 articles in 2016, with fluctuations observed during the 2017–2020 period. A significant surge occurred in 2023 (15 articles), 2024 (16 articles), and peaked in 2025 with 22 articles. This acceleration pattern reflects increasing global academic attention to issues of human capital, social capital, and the well-being of self-employed workers in the informal sector, a focus that has gained particular relevance in the context of post–COVID-19 economic recovery and the transition toward a digital economy.

**Figure 1. Annual Publication Trends (2015–2025)**

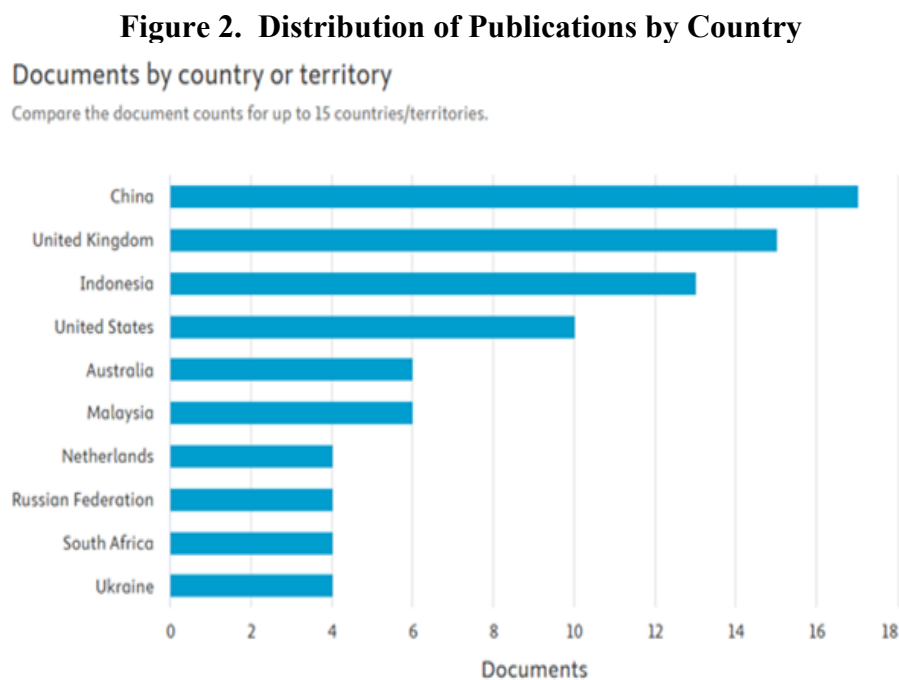


Source: Scopus, accessed 6 April 2026

The sharp increase observed during 2023–2025 may be attributed to several factors, including expanding global policies on informal worker protection, the impetus of the Sustainable Development Goals (SDGs) agenda, and broader digital access enabling more researchers from developing countries to contribute to high-reputation international journals. This finding aligns with Rostini & Ergicho (2025), who similarly noted a surge in bibliometric publications on topics related to performance evaluation and governance during the same period.

### 3.2. Country Contributions, Institutional Affiliations, and Authorship

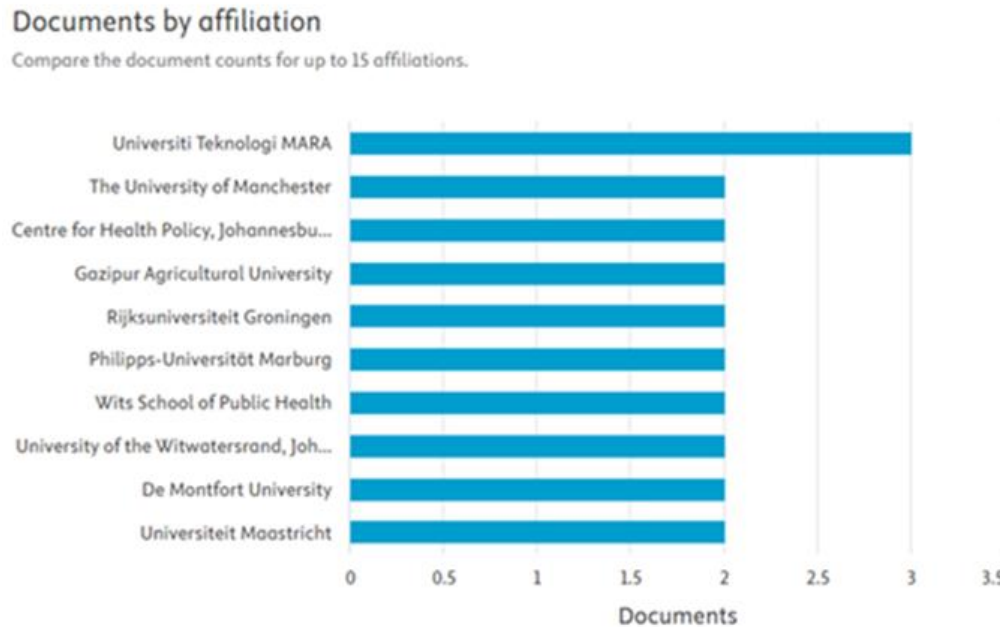
Analysis of country distribution reveals that China (17 articles) is the largest publication contributor, followed by the United Kingdom (15 articles), Indonesia (13 articles), the United States (10 articles), Australia (6 articles), and Malaysia (6 articles), as shown in Figure 2. China's dominance reflects its strong research capacity in examining informal-sector entrepreneurship issues, particularly within the context of rural and digital economies. Indonesia's presence as the third-largest contributor is a positive indicator of the country's growing research capacity in this field.



Source: Scopus, accessed 6 April 2026

At the institutional affiliation level, the distribution of publication contributions shows a relatively dispersed pattern without highly dominant institutions, as illustrated in Figure 3. Universiti Teknologi MARA is recorded as the affiliation with the highest number of publications, contributing three articles to the corpus. Most other affiliations contributed only two articles each. This pattern indicates that the research landscape in this field remains open and is not yet concentrated within particular institutions, a condition that presents significant opportunities for higher education institutions, particularly in Indonesia, to enhance their scientific contributions through contextually grounded research.

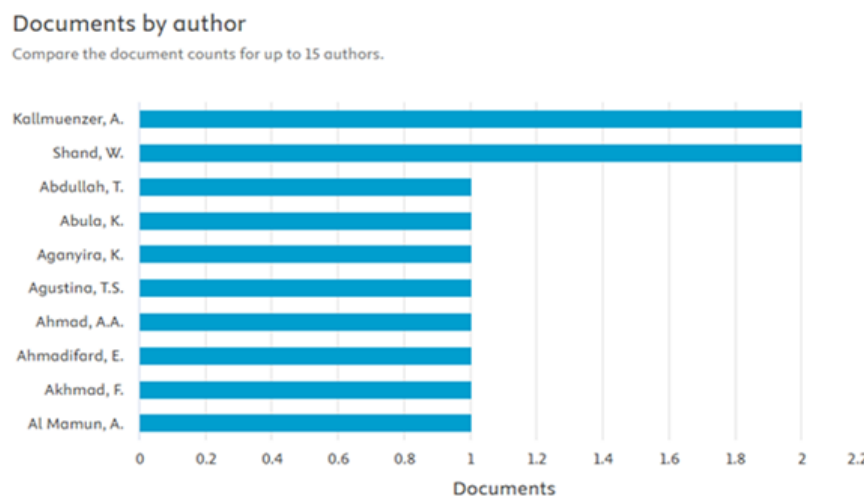
**Figure 3. Distribution of Institutional Affiliations**



Source: Scopus, accessed 6 April 2026

In terms of individual authorship, Kallmuenzer, A. and Shand, W. emerge as the most prolific authors, each with two articles, while the majority of other authors have contributed one article each. This pattern indicates that the research field remains dispersed and does not yet feature a highly dominant core group of researchers, simultaneously creating opportunities for new scholars to contribute and develop further studies, as shown in Figure 4.

**Figure 4. Distribution of Individual Authorship**



Source: Scopus, accessed 6 April 2026

**3.3. Articles with the Highest Citations**

Table 1 presents the ten articles with the highest number of citations related to human capital, social capital, and the well-being of self-employed workers in the informal sector.

**Table 1. Top Ten Most-Cited Articles (2015–2025)**

| No. | Author(s) and Year  | Year | Article Title  | Journal   | Citations |
|-----|---------------------|------|--|---|-----------|
| 1   | Prasetyo & Kistanti | 2020 | <i>Human capital, institutional economics and entrepreneurship as a driver for quality and sustainable economic growth</i> | Entrepreneurship and Sustainability Issues        | 102       |
| 2   | Welter, et al.      | 2018 | <i>Entrepreneurial resourcefulness in unstable institutional contexts: The example of European Union borderlands</i>       | Strategic Entrepreneurship Journal                | 100       |
| 3   | Butler, et al.      | 2016 | <i>Priming adaptation pathways through adaptive co-management: Design and evaluation for developing countries</i>          | Climate Risk Management                           | 88        |
| 4   | Peters, et al.      | 2019 | <i>Hospitality entrepreneurs managing quality of life and business growth</i>  | Current Issues in Tourism                         | 85        |
| 5   | Holt & Littlewood   | 2017 | <i>Waste Livelihoods Amongst the Poor – Through the Lens of Bricolage</i>  | Business Strategy and the Environment             | 72        |
| 6   | Cheng, et al.       | 2024 | <i>How digital skills affect farmers' agricultural entrepreneurship? An explanation from factor availability</i>           | Journal of Innovation and Knowledge               | 68        |
| 7   | Mahmood, et al.     | 2019 | <i>Predicting entrepreneurial intentions and pre-start-up behaviour among Asnaf millennials</i>                            | Sustainability                                    | 66        |
| 8   | Chitsaz, et al.     | 2019 | <i>The effect of human and social capital on entrepreneurial activities: A case study of Iran and Impication</i>           | Entrepreneurship and Sustainability Issues        | 61        |
| 9   | Mehtap, et al.      | 2019 | <i>'I'm a stay-at-home businesswoman': An insight into informal entrepreneurship in Jordan</i>                             | Journal of Entrepreneurship in Emerging Economies | 55        |
| 10  | Hao, et al.         | 2019 | <i>Evolutionary game analysis on knowledge-sharing behavior in the construction supply chain</i>                           | Sustainability                                    | 51        |

Source: Scopus, accessed 6 April 2026

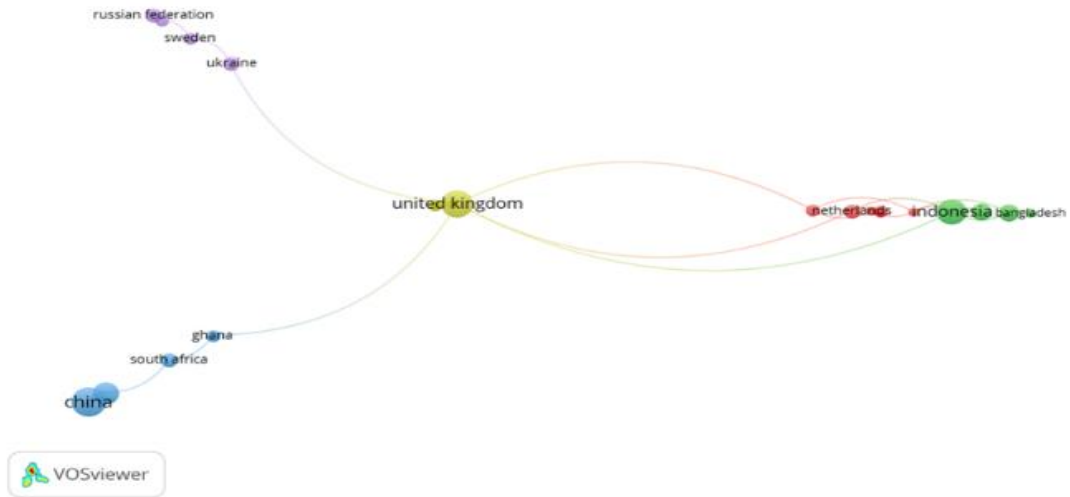
Table 1 presents the ten most cited articles on human capital, social capital, and the well-being of self-employed workers in the informal sector, drawn from 102 Scopus-indexed documents published between 2015 and 2025. Citation counts range from 51 to 102, indicating a moderate to high level of scholarly impact across the corpus. The most cited article is Prasetyo & Kistanti (2020) with 102 citations, followed by Welter et al., (2018) with 100 citations and Butler et al. (2016) with 88 citations. Of the ten articles, eight were published between 2016 and 2019, reflecting the foundational role of that period in establishing the core theoretical frameworks of this research domain. Two articles were published in 2020 or later, namely Prasetyo & Kistanti (2020) which has accumulated 102 citations over six years and stands as the single most influential work in the corpus, and Cheng et al., (2024) which has garnered 68 citations within approximately two years of publication, reflecting the growing urgency of digital skills and informal sector entrepreneurship research in the post pandemic era.

In terms of thematic coverage, the ten articles collectively span four substantive domains that correspond directly to the clusters identified in the keyword co-occurrence analysis. The first domain concerns entrepreneurship and well-being, represented by Peters et al., (2019), whose study on hospitality entrepreneurs directly examines quality of life and subjective well-being as central outcomes of self-employment. The second domain addresses the role of human capital and social capital in shaping entrepreneurial outcomes, as examined by Chitsaz et al., (2019), Mahmood et al., (2019), and Prasetyo & Kistanti (2020), all of whom investigate how individual capabilities, social networks, and capital endowments influence entrepreneurial intentions and activities. The third domain focuses on livelihoods and the informal sector, represented by Butler et al., (2016), Holt & Littlewood (2017), Mehtap et al., (2019), and Welter et al., (2018), each of which examines the structural conditions, institutional contexts, and livelihood strategies of self-employed workers operating outside formal economic systems. The fourth domain encompasses knowledge and sustainability, as reflected in the work of Cheng, et al (2024) and Hao et al., (2019), both of which foreground knowledge-based mechanisms, digital skills and knowledge-sharing behaviour, respectively as drivers of entrepreneurial productivity and collaborative outcomes in informal and agricultural settings. The distribution of journals is equally diverse, spanning entrepreneurship, tourism, environmental and climate risk management, sustainability, and innovation studies, confirming that the topic of human capital, social capital, and informal-sector well-being is addressed across multiple disciplinary traditions.

#### **3.4. Co-authorship Collaboration Network Analysis**

The visualization of the co-authorship collaboration network using VOSviewer (Figure 5) reveals two main characteristics in collaboration patterns among authors: connected co-authorship and unlinked co-authorship.

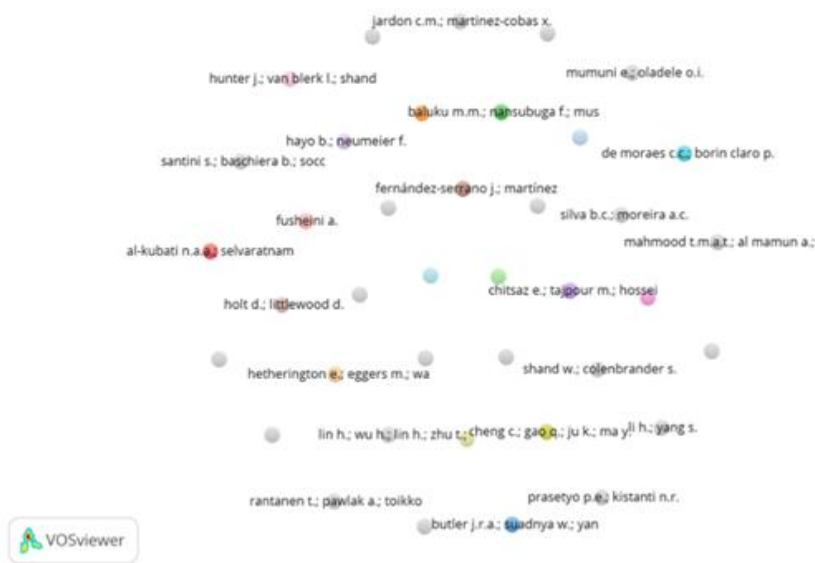
**Figure 5. Connected Co-authorship**



Source: VOSviewer Data, processed (2026)

At the level of connected co-authorship, the United Kingdom serves as the principal hub in the inter-country collaboration network, linking researchers from Russia, Sweden, Ukraine, Ghana, South Africa, and China. Meanwhile, the Indonesia, Netherlands, Bangladesh group forms a separately connected sub-cluster of collaboration. This pattern reflects the existence of active research communities at several nodes, although overall network connectivity remains relatively low.

**Figure 6. Unlinked Co-authorship**



Source: VOSviewer Data, processed (2026)

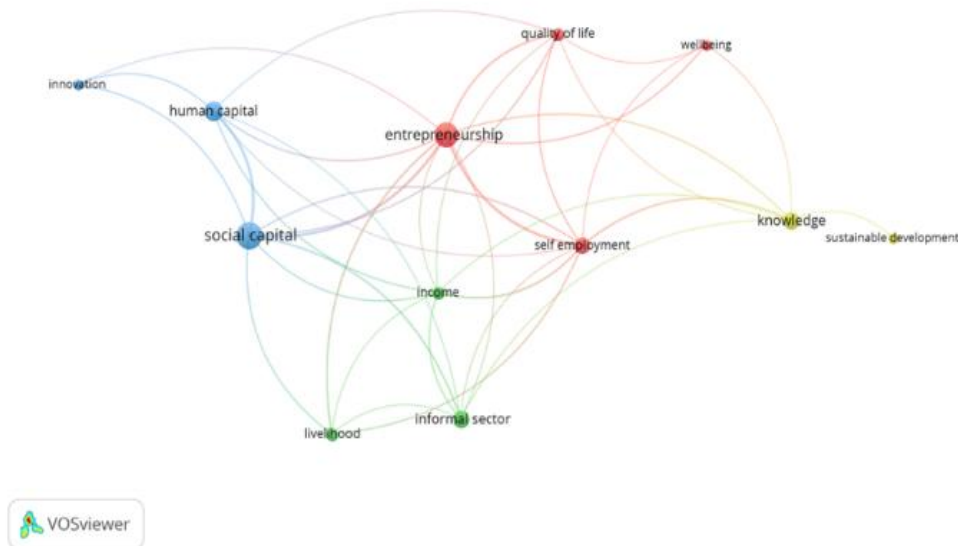
In the unlinked co-authorship pattern shown in Figure 6, the majority of author teams operate independently, without forming connections with other author groups. This phenomenon indicates that scientific collaboration in this field remains thematically, institutionally, and geographically limited. This finding aligns with Rostini & Ergicho (2025), who identified similar fragmentation in the literature on decentralisation and performance evaluation. The condition suggests the need for strategic initiatives, such as international research consortia and multidisciplinary scientific forums, to foster more intensive knowledge integration.

### 3.5. Keyword Co-occurrence Analysis

The keyword co-occurrence analysis employs VOSviewer to map thematic structures in the literature through three complementary visualisations: network, overlay, and density. Together, these visualisations provide a multi-layered understanding of how research topics are clustered, how they have evolved temporally, and how intensively each theme is represented in the corpus.

#### a. Network Visualisation

The network visualisation presented in Figure 7 displays keyword nodes sized according to occurrence frequency, with link thickness reflecting co-occurrence strength. A careful reading of node colours identifies four distinct thematic clusters. The first cluster (red) centres on the dimensions of well-being and entrepreneurship, comprising the keywords entrepreneurship, quality of life, wellbeing, and self employment. As the cluster with the highest number of co-occurring links to other nodes, this cluster represents the central outcome dimension of the research domain, capturing the stream of studies that examines subjective and multidimensional well-being as a function of entrepreneurial engagement among self-employed workers (Peters et al., 2019). The second cluster (blue) is anchored by the keywords social capital, human capital, and innovation, representing the foundational capital-and-capability dimension of the literature. Social capital appears as the largest node in this cluster, reflecting its position as the most intensively studied construct in the corpus, while innovation signals the emerging attention to how capital endowments translate into creative and adaptive behaviour among informal-sector workers (Chitsaz et al., 2019; Prasetyo & Kistanti, 2020). The third cluster (green) encompasses the keywords informal sector, livelihood, and income, representing the structural-context dimension of the research. This cluster foregrounds studies that situate self-employment within the material realities of livelihood precarity, limited income, and the structural conditions of informality (Fu et al., 2023; Hendratmi et al., 2022; Holt & Littlewood, 2017; Mehtap et al., 2019; Welter et al., 2018). The fourth cluster (yellow-olive) comprises the keywords knowledge and sustainable development, reflecting an emerging strand of research that connects knowledge-based capacities with long-term sustainability objectives in the informal economy (Cheng et al., 2024; Hao et al., 2019; Xu & Jiang, 2024). This cluster, while smaller in node size relative to the others, represents a frontier of growing scholarly interest, particularly as digital skill development and sustainable livelihoods gain prominence on global policy agendas.

**Figure 7. Keyword Co-occurrence**

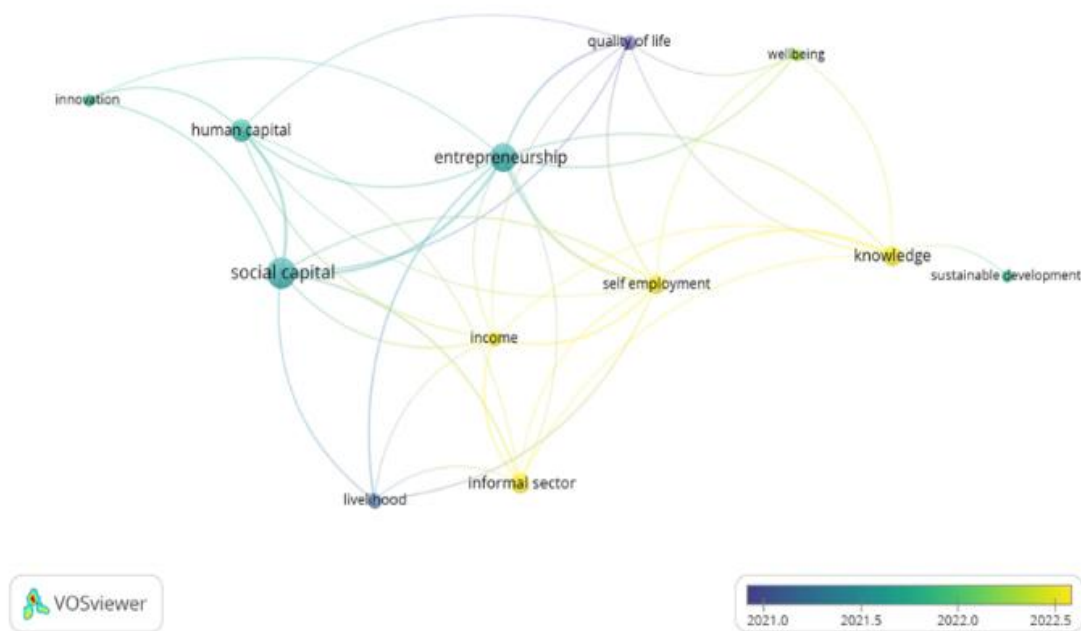
Source: VOSviewer Data, processed (2026)

### b. Overlay Visualisation

The overlay visualisation presented in Figure 8 introduces a temporal dimension by colour coding each keyword node according to the average year of the publications in which it appears. Blue purple tones indicate keywords associated with older publications (approximately 2021), while green to yellow tones denote keywords associated with more recent publications (approximately 2022–2023). The keywords social capital and human capital appear in the blue green range (approximately 2021–2021.5), confirming their status as long-established foundational themes that have constituted the scholarly vocabulary of this field since its earliest phase of growth and continue to attract sustained attention. This is evidenced by foundational works such as Chitsaz et al., (2019), who test the influence of both human and social capital on entrepreneurial activities in rural Iran, and Zhao & Li, (2021), who demonstrate the mediating role of financial literacy in the relationship between social capital and rural household entrepreneurship. The keyword entrepreneurship occupies a similarly established temporal position, reflecting its enduring centrality as the primary context within which human and social capital are examined, as corroborated by Prasetyo & Kistanti (2020), whose integrated framework positions entrepreneurship as the principal channel through which capital endowments generate sustainable economic outcomes. By contrast, the keywords knowledge and income appear in the yellow green range (approximately 2022–2022.5), indicating that research emphasising knowledge based approaches and income outcomes represents a more recent and rapidly expanding strand of inquiry. Cheng et al., (2024) exemplify this trajectory by demonstrating that digital skills a key dimension of human capital significantly shape agricultural entrepreneurship and income generation through factor availability mechanisms, while Li & Yang (2023) establish

that digital countryside construction increases household income among rural self-employed populations, and Zhang et al., (2023) further show that digital skills broaden employment choices and income opportunities for rural labour. The keyword informal sector also appears in the yellow green range, indicating growing recent attention to the structural dimensions of informality as a context for knowledge and income (Hendratmi et al., 2022; Mehtap et al., 2019). The keyword sustainable development appears furthest into the yellow range, further corroborating the fourth cluster's status as the most emergent research frontier within the corpus. Taken together, the overlay visualisation documents a discernible temporal trajectory in the field, from foundational studies anchored in social and human capital toward more applied, outcome oriented examinations of income, knowledge, and sustainability among self-employed workers in the informal sector (Laila et al., 2025; Xu & Jiang, 2024).

**Figure 8. Overlay Visualization**



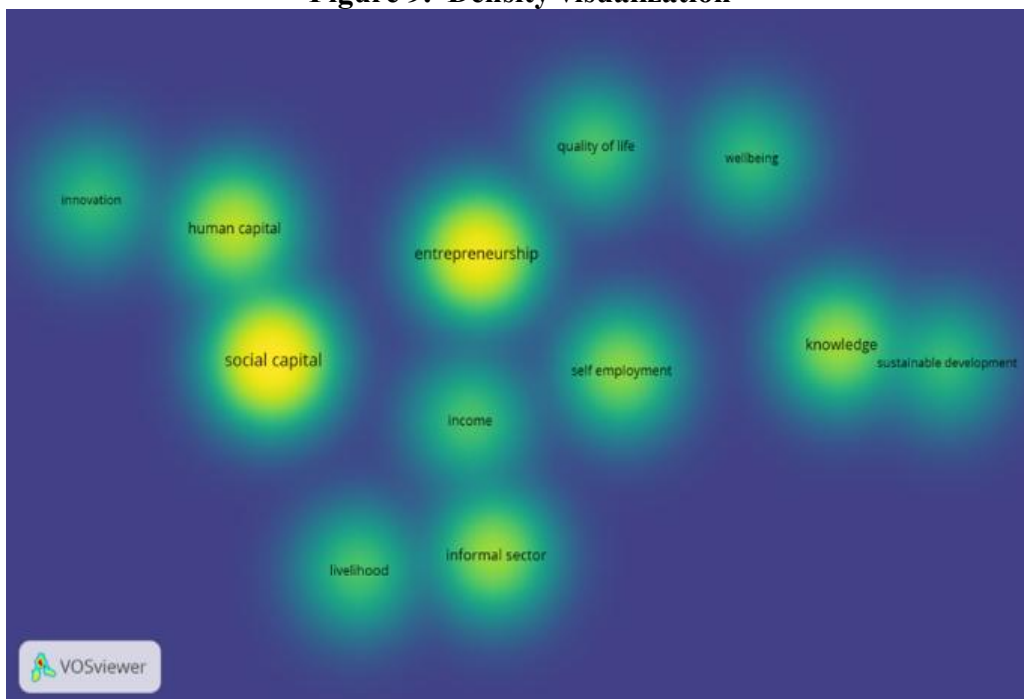
Source: VOSviewer Data, processed (2026)

### c. Density Visualisation

The density visualisation presented in Figure 9 maps the intensity of scholarly engagement with each keyword, where bright yellow indicates the highest density of co-occurrence and connection strength, green denotes moderate density, and dark blue-purple marks areas of comparatively limited research concentration. Three keywords emerge with the highest density, indicated by bright-yellow nodes, namely social capital, entrepreneurship, and knowledge. The primacy of social capital as the single most densely connected keyword across the entire corpus confirms its position as the central organising

concept of this research domain, consistent with extensive empirical evidence that social networks, trust, and collective norms are primary determinants of both business success and well-being among self-employed workers, particularly in developing countries where formal capital access remains severely constrained (Hazudin et al., 2022; Laila et al., 2025; Prasetyo & Kistanti, 2020; Zhao & Li, 2021). The keyword entrepreneurship occupies the second position in density, functioning as the conceptual bridge between the capital endowment dimension (blue cluster) and the well-being outcome dimension (red cluster), through which human and social capital are translated into measurable improvements in quality of life, income, and livelihood resilience (Cheng et al., 2024; Chitsaz et al., 2019; Hazudin et al., 2022). The keyword knowledge as the third high-density node reflects the field's growing recognition that knowledge encompassing technical, entrepreneurial, and financial literacy constitutes a critical mediating mechanism between capital endowments and well-being outcomes for self-employed informal workers (Xu & Jiang, 2024; Zhao & Li, 2021). Keywords representing the red cluster, including quality of life, wellbeing, and self employment, exhibit moderate-to-high density (yellow-green), indicating robust but still-developing research attention. The green cluster keywords informal sector, livelihood, and income show moderate density, while the yellow-olive cluster keywords sustainable development and innovation remain at comparatively lower density levels, signalling substantial frontier potential for future inquiry into how human and social capital jointly foster sustainable livelihoods and innovative behaviour among self-employed informal workers (Al-Kubati & Selvaratnam, 2023; Hendratmi et al., 2022).

**Figure 9. Density visualization**



Source: VOSviewer Data, processed (2026)

#### 4. DISCUSSION

The accelerated growth in publications between 2023 and 2025 is not merely a bibliometric artifact; it reflects the convergence of several structural forces that have repositioned informal sector research at the forefront of global academic discourse. The post pandemic economic disruption disproportionately affected self-employed workers in the informal sector, exposing the fragility of livelihood systems that depend on social capital networks and human capital endowments (Hendratmi et al., 2022). Concurrently, the mainstreaming of digital platforms has introduced new pathways through which human capital, in the form of digital skills, mediates access to markets and income opportunities for informal workers (Cheng et al., 2024; Zhang et al., 2023). These macro level dynamics have catalysed a corresponding surge in scholarly inquiry, reflecting the increasing urgency with which academics, policymakers, and international development institutions are engaging with questions of resilience, capability, and well-being in the informal economy.

The dominance of China, the United Kingdom, and Indonesia as the three leading contributing countries reveals an instructive geographical pattern. China's primacy reflects sustained state investment in research on rural entrepreneurship, digital economies, and inclusive development, domains that intersect closely with the thematic clusters identified in this study (Li & Yang, 2023; Zhang et al., 2023). The United Kingdom's strong contribution is consistent with its tradition of institutional and entrepreneurship research, exemplified by the highly cited work of Welter et al., (2018) on entrepreneurial resourcefulness. Indonesia's position as the third largest contributor is particularly noteworthy, given its large informal economy and the growing engagement of Indonesian scholars with questions of social capital, livelihood resilience, and micro-entrepreneurship (Hendratmi et al., 2022; Laila et al., 2025; Lee et al., 2025). However, the fragmented nature of inter-country collaboration networks, as evidenced by the VOSviewer co-authorship mapping, suggests that these national research traditions have yet to consolidate into coherent international research communities capable of producing cumulative, comparative knowledge.

The citation analysis further illuminates the theoretical foundations of this research domain. The pre-eminence of Prasetyo & Kistanti (2020) signals the continued salience of integrated frameworks that position human capital, social capital, and entrepreneurship as co-constitutive pillars of sustainable economic development, particularly in the Global South. The theoretical resonance between this work and the keyword clusters identified in the VOSviewer analysis, notably the centrality of social capital and entrepreneurship as high density nodes, suggests that the field is converging toward a relational view of informal sector well-being, one that privileges social embeddedness and collective resources over purely human capital-based explanations. This aligns with contemporary theoretical developments in the capabilities approach and social entrepreneurship literature, which

argue that well-being outcomes are co-produced through the interaction of individual capacities and social structures (Chitsaz et al., 2019; Laila et al., 2025; Zhao & Li, 2021).

The keyword co-occurrence analysis, synthesised across all three VOSviewer visualisations, reveals both the intellectual architecture and the evolutionary trajectory of this research domain. The four-cluster structure identified in the network visualisation (1) well-being and entrepreneurship (red), (2) social capital and human capital (blue), (3) livelihood and the informal sector (green), and (4) knowledge and sustainable development (yellow-olive) reflects a field that is theoretically coherent yet empirically still expanding. Clusters 1 and 2 represent the field's established theoretical core, wherein social capital and human capital are studied primarily in relation to entrepreneurial processes and well-being outcomes. Clusters 3 and 4, by contrast, represent the field's empirical and policy frontier: cluster 3 anchors the analysis in the material realities of informal livelihoods and income precarity, while cluster 4 signals an emerging paradigm shift toward knowledge-based and sustainability-oriented approaches. The blue-purple temporal colouring of social capital and human capital in the overlay visualisation confirms their status as foundational constructs established since at least 2021, while the yellow-green colouring of knowledge, income, informal sector, and sustainable development signals a more recent pragmatic turn in the literature, which is increasingly preoccupied with translating capital endowments into measurable well-being outcomes for specific underserved populations. This trajectory carries significant implications for future research design: longitudinal, mixed-methods studies that trace the mechanisms through which human and social capital accumulation translates into sustained improvements in income, quality of life, and livelihood resilience are urgently needed, particularly for populations in Southeast Asia and Sub-Saharan Africa that remain underrepresented in the current corpus (Al-Kubati & Selvaratnam, 2023).

From a policy perspective, the findings of this study underscore the importance of designing interventions that simultaneously address both the human capital and social capital dimensions of informal-sector well-being. Policies that invest in digital literacy and vocational training without attending to the social network structures through which knowledge and opportunities are accessed are unlikely to produce durable improvements in self-employed workers' well-being. Conversely, social capital formation programmes that do not equip individuals with the knowledge and skills to leverage their networks for economic advancement will remain insufficient. An integrated approach, grounded in the four-cluster relational dynamics identified in this study, which encompassing well-being outcomes, capital endowments, livelihood contexts, and knowledge-sustainability linkages, offers a more robust and contextually sensitive framework for inclusive economic policy in developing countries.

## 5. CONCLUSION

This bibliometric study maps the development of research on human capital, social capital, and the well-being of self-employed workers in the informal sector during the 2015–

2025 period, drawing on 102 documents from the Scopus database. The principal findings can be summarised as follows.

First, publication trends demonstrate accelerated growth, peaking in 2025 (22 articles) and 2024 (16 articles), reflecting the increasing relevance of this topic on the global research agenda in the context of post-pandemic economic recovery and digital transformation. Second, China, the United Kingdom, and Indonesia are the largest contributing countries; however, inter-country collaboration networks remain fragmented, with the majority of author teams operating independently without forming cross-institutional or cross-national connections. Third, the article by Prasetyo & Kistanti (2020) stands as the most influential work in the corpus, with 102 citations, underscoring the centrality of integrated human-capital and social-capital frameworks in understanding informal-sector development. Fourth, co-authorship network analysis reveals limited collaborative ties among researchers in this domain, signalling a need for strategic investment in international research consortia, joint publications, and multidisciplinary scholarly forums to foster cumulative knowledge development. Fifth, four main thematic clusters are identified through keyword co-occurrence analysis: (1) well-being and entrepreneurship; (2) social capital and human capital; (3) livelihood and the informal sector; and (4) knowledge and sustainable development. The density and overlay visualisations further indicate a temporal shift in the field from foundational capital-based studies toward more integrative and outcome-oriented examinations of well-being, knowledge, and sustainability.

The implications of these findings include recommendations for Indonesian researchers to publish their research outputs more actively in high-reputation international journals, given Indonesia's position as the third-largest contributor but with still limited collaboration networks. Furthermore, the development of research that simultaneously integrates the three constructs, human capital, social capital, and well-being, is necessary, particularly through longitudinal designs and mixed-methods approaches capable of capturing the long-term dynamics of inter-variable interactions in the informal sector.

This study has several limitations that should be acknowledged. The use of a single Scopus database may exclude relevant publications indexed in other databases, such as Web of Science. Moreover, the restriction to English-language documents may overlook important contributions from local-language literature. Future research is therefore encouraged to explore meta-analysis approaches or more in-depth systematic reviews of the identified thematic clusters, with particular attention to populations in underrepresented regions.

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