

Parameters of sustainability: a systematic literature review and bibliometric analysis with respect to micro enterprises

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Abstract

Purpose – The purpose of this paper is to perform a thorough analysis of the literature on the parameters of sustainability of the micro-enterprises. It seeks to provide an organizing framework to identify research gaps and future directions. Using data from Web of Science and Scopus, the study offers insights into key trends, authorship and thematic shifts, informing future research design and positioning.

Design/methodology/approach – Researchers used a systematic review methodology, gathering data from Web of Science and Scopus databases. R Studio software facilitated bibliometric analysis. This study scrutinized research papers to construct an organizing framework and identify thematic trends in sustainability parameters for micro-enterprises.

Findings – The review presents a comprehensive overview of sustainability parameters in micro-enterprises, revealing significant research trends, key authors, countries and journals. It identifies gaps and suggests future research directions, aiding in the design and positioning of forthcoming studies in this domain.

Research limitations/implications – Limitations may include the scope of databases accessed and potential biases in the selected literature. Future studies could explore additional databases or incorporate qualitative analyses for deeper insights into sustainability parameters in micro-enterprises.

Practical implications – This study offers practical insights for policymakers, practitioners and researchers by highlighting key sustainability parameters in micro-enterprises. It informs decision-making processes concerning resource allocation, policy formulation and support mechanisms for sustainable development.

Social implications – Understanding sustainability parameters in micro-enterprises has significant social implications, particularly for vulnerable groups like craftsmen, women and young entrepreneurs. By addressing these parameters, interventions can enhance livelihoods and contribute to broader socio-economic development.

Originality/value – By providing a thorough analysis of sustainability factors in micro-enterprises and applying bibliometric analysis to shed light on research trends, this paper adds to the body of literature. Its



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organized framework identifies gaps and guides future research, offering value to scholars, policymakers and practitioners invested in sustainable development at the grassroots level.

Keywords MSMEs, Micro-enterprises, Sustainability, Systematic literature review (SLR), Parameters, Bibliometric analysis, R Studio

Paper type Literature review

1. Background of the study

Ninety percent of global business is made up of micro, small and medium enterprises (MSMEs), according to the United Nations (UN). Globally, the industry accounts for 50% of gross domestic product (GDP) and over 70% of employment. MSMEs are the backbone of any nation and support livelihoods both locally and nationally, especially for artisans, the impoverished working class, the lower and middle classes, women, young entrepreneurs and other vulnerable groups (United Nations, 2022). According to data from the World Bank, the MSME sector in emerging nations generates seven out of ten formal and informal employment in these economies. By 2030, it is predicted that 600 million jobs would be required globally to accommodate the expanding workforce (United Nations, 2022). This makes the development of the MSME sector a high priority for governments across the world.

According to the International Trade Centre, MSMEs are more concerned about climate change and environmental risks are affecting their business. This has aided the MSMEs throughout the globe to adopt a more sustainable business practice which in turn is helping in the progress towards achieving the Sustainable Development Goals (SDGs) more efficiently (International Trade Centre, 2021). For any country, the sustainability of the MSME sector is a major perturb. In the context of MSMEs, sustainability generally signifies the practice of maintaining productivity along with replacing the used resources with resources of equal or greater importance without depleting the natural ecosystem (Purnomo *et al.*, 2022). The sustainability of MSMEs depends on certain factors and parameters which may include demographic features, financing patterns, innovations and entrepreneurship skills, knowledge and expertise, etc. (Malhotra and Riley, 2009; Galindo and Méndez-Picazo, 2013; Haynes *et al.*, 2000; Boons and Lüdeke-Freund, 2013).

MSMEs are considered as the backbone of any nation and possess a significant impact on employment generation, resource utilization and biodiversity (Yadav *et al.*, 2018). In the Indian context, micro units dominate the MSME sector. According to the Economic Survey (2021–2022), out of the total registered MSME units, 94.6% units are micro-enterprises (Economic Times, 2022).

In the backdrop of the significance of this sector, there arises the need to study, analyse and de-earth the sustainability parameters of micro-enterprises across the world and its practical implications in the Indian subcontinent. Hence, the present study aims to encapsulate prominent parameters and factors of micro-enterprises to turn into sustainable business units.

2. Need of the study

MSMEs are found all over the world in a wide range of sizes and forms. They are a diverse group of companies that offer a range of opportunities and challenges for putting sustainability-focused plans and results into practice (Koirala, 2019). According to Chege (2020), the formal definition of MSMEs varies depending on the economic, cultural and societal context of the nation. Sundin *et al.* (2015) identified the indicators for the

sustainability of SMEs across the globe and extended the study to defend the need for sustainability of the SMEs in the global economy.

Afdal *et al.* (2021) came to the conclusion that, in light of the current turbulent and turnaround-prone times, it is critical to take a number of steps to ensure business sustainability, especially for the SME sector during the COVID-19 pandemic. With respect to the sustainability of small businesses, Gustavo *et al.* (2021) identified networks-open innovation, information knowledge and product and process innovations as the major indicators. Some eminent research works concluded financial factors, government support and entrepreneurship as indicators of the sustainability of the business (Haynes *et al.*, 2000; Ketkar *et al.*, 2012; Harper, 2003; Ketkar *et al.*, 2012).

In the context of the review of the available kinds of literature, it is evident that various research works have been conducted to identify the major parameters of sustainability of the SME sector. But the parameters are scattered in different strata and their implication in the context of micro-enterprises is very limited. The researchers identified the matter as a major research gap and intended to identify and summarize the drivers of sustainability of the micro-enterprises using a systematic literature review (SLR) and bibliometric analysis.

3. Objectives of the study

The objectives of the study are:

- to study, analyse and de-earth the sustainability parameters of micro-enterprises across the world and their practical implications;
- to discuss the current state of research on parameters of sustainability in the context of micro-enterprise; and
- to provide the future research scope on parameters of sustainability in the context of micro-enterprise.

4. Methodology used

SLR and bibliometric analysis, as stated by Swani *et al.* (2020), Yadav *et al.* (2018), Nolan and Garavan (2016), Zahoor *et al.* (2020), Kreutz *et al.* (2021), Bashir and Qureshi (2022) and Kumar *et al.* (2022), form the basis of the technique used in the current work. It is methodology research carried on by synthesizing existing literature in a “reproducible, transparent, and systematic manner” (Tranfield *et al.*, 2003). It is known as a concept-driven, SLR process and is centered on conceptualising the current literature to extract the thrust areas of a research topic (Webster and Watson, 2002). Research projects based on the SLR approach have as their primary goal the theoretical synthesis of previously published studies to derive collective insights. The SLR approach is exacting in nature and aids in creating a trustworthy knowledge base for academicians and researchers to use for additional investigation of the area. Thus, it can be correctly inferred that it is a practical research instrument that focuses on providing for both academicians and researchers in the community (Tranfield *et al.*, 2003).

SLR uses the same four processes for research as any other approach. It involved setting up the framework, deciding on the sample and population, analysing the sample and then interpreting the sample to come to the appropriate conclusions and make the necessary recommendations. Recognizing the necessity for the research and the research question is the first step in the SLR approach. The search for relevant literature is the next step, after which formalized literature that is appropriate for analysis is reported. The final step is to analyse the results of the literature and make conclusions and suggestions (Ashby *et al.*, 2012).

It is clear that there are not many types of research using SLR that are focused on the sustainability of MSMEs, particularly the micro sector. The population and sample size of the literature need to be increased and selected in a systematic manner to develop a consolidated and significant knowledge base to aid in identifying the determinants of sustainability of the micro-enterprises. This will improve the methodological rigor of research work.

4.1 Organising framework

This article follows the five-step approach of bibliometric analysis and SLR which are establishing the research objectives or questions, defining the conceptual boundary, setting the inclusion criteria, Study identification, screening and selection process and the last one is Analysis and synthesis.

The databases selected for the present study are Scopus and Web of Science. Since these two databases are very popular and have a huge resource that's why these two databases have been selected. The keywords mentioned in [Figure 1](#) are used to search in the title, abstract, or keyword through both index databases Scopus and Web of Science. After searching some filters have been used to reduce the number of articles and find out more relevant articles. The search for "parameters of sustainability of micro-enterprises" terms and other related keyword yielded 3,526 articles for Scopus and 2,538 articles for Web of Science. Based on the exclusion criteria, a further 1,320 works were eliminated.

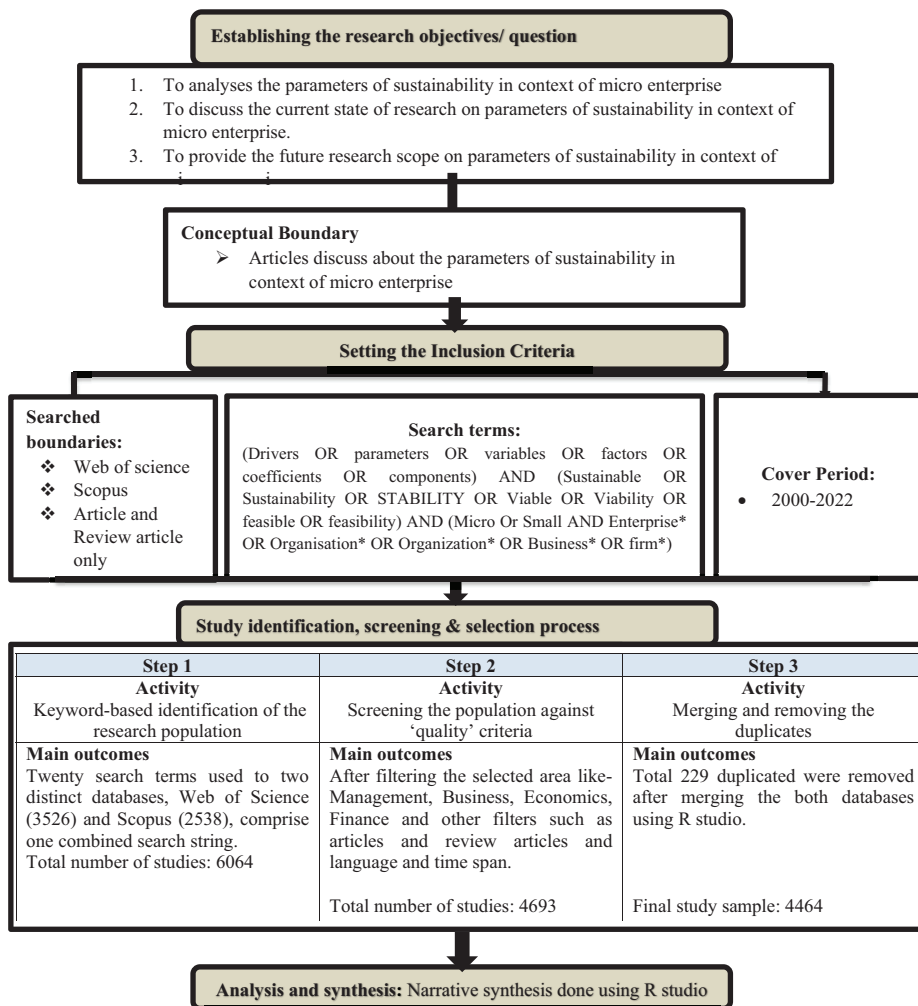
The criteria are formulated based on the measures to inculcate only the aspects of sustainability initiatives of micro-enterprises as well as articles from 2000 to 2022 have been inculcated. The reason behind selecting time period is that there were very fewer numbers of articles published before 2000. Research in this area has increased after 2000. The outcome from searches produced some repetition of articles because the use of interchangeable terms with different research disciplines creates overlapping outputs. The combined databases provided a total of 4,693 research articles eliminating overlapping 229 articles. Then the number of articles left is 4,464. The final selection comprised of 4,464 articles. The detailed framework is explained below:

5. Current status of research on parameters of sustainability with respect to the micro-enterprise

MSMEs are found all over the world in a wide range of sizes and forms. They are a diverse group of companies that offer a range of opportunities and challenges for putting sustainability-focused plans and results into practice ([Koirala, 2019](#)). According to [Chege \(2020\)](#), the formal definition of MSMEs varies depending on the economic, cultural and societal context of the nation.

This article has examined a number of bibliometrics data, including those related to the corpus, article, author, country and journal performance as revealed by performance analysis and intellectual structure, which encapsulate the knowledge foundation (past) and knowledge production (present), unpacked through science mapping via co-citation and keyword analysis, to determine the current status of research on sustainability parameters in the context of micro-enterprises. The basic information of data that has been used for bibliometric analysis is mentioned in [Table 1](#).

In this corpus, a total of 4,464 articles from 909 different books and journals with total references of 222,357 have been selected for the analysis. Within 4,464 articles 196 are review articles. The growth rate of research in this area is 16% p.a. which is great for this area. The foreign article contribution is around 21%. The number of research articles is very high because after 2015 the government's focus has increased on the MSME sector and they



Source: Prepared by the researchers

Figure 1. An overview of the methods used in the systematic review

started to give different kinds of incentives and subsidies to help the sustainability of the micro-enterprise.

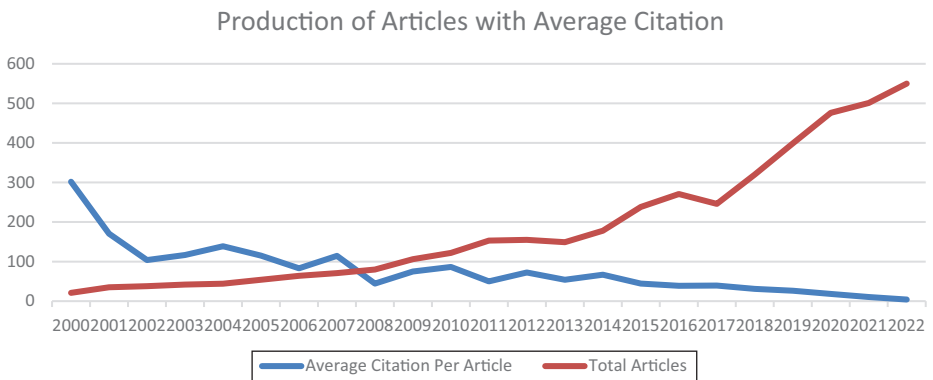
5.1 Corpus performance

This analysis has considered total of 4,464 articles published between 2000 and 2022. The reason behind selecting the time period is that before 2000 there was a very small number of articles that have been published which is negligible and 2023 is just started so if articles published in 2023 will be considered then it will not give a complete picture (see Figure 2).

Table 1. Information used for bibliometric analysis

Timespan	2000–2022	Authors collaboration	
Sources (journals, books, etc.)	909	Single-authored docs	624
Documents	4464	Co-authors per doc	2.85
Annual growth rate %	16	International co-authorships %	20.79
Document average age	6.79	<i>Document types</i>	
Average citations per doc	39.33	Article	4268
References	222357	Review	196

Source: Compiled by the researcher using R studio



Source: Compile by the researcher by using R Studio

Figure 2. Production of article over the time horizon and average total citation per article

The production in this area started to grow in 2007 and after 2017 it grows very fast rate. In 2016, SDGs have been announced because of this, after 2016 the research on sustainability has been increasing. In just six years, from 2016 to 2022, a total of 2,763 publications were published in this field, compared to 1,550 articles published between 2000 and 2015. So it can be clearly said that the research on parameters of sustainability in the context of the micro-enterprise is much affected after the implementation of SDGs.

5.2 Article performance

Instead of depending solely on global citations, which include citations from non-CE publications, a co-citation analysis was performed to identify the top articles that have received the most local citations from other articles, to more correctly evaluate the citation performance of articles (see Table 2).

Aguinis *et al.* (2012) was the most locally cited article with 82 citations. In this article, they tried to explain how CSR plays an important role to maintain the sustainability of the micro-enterprise, Cheng *et al.* (2014) also agree with the same. Bansal *et al.* (2005) is the second most locally cited article which shows that in later time periods, higher concern for social fairness was the main driver of an increase in corporate sustainable development from 1986 to 1995. The third most often cited article in the local community is Vachon and Klassen (2006), which

Table 2. Ten most-cited articles

Rank	Authors	Local citations	Global citations	Title
1	Aguinis et al. (2012)	82	2,106	The knowledge and ignorance surrounding corporate social responsibility
2	Bansal et al. (2005)	75	1,322	Adapting to change: an extended analysis of business sustainability initiatives
3	Vachon and Klassen (2006)	73	811	Integrating eco-friendly techniques into the supply chain
4	Sharma et al. (2000)	71	1,082	Organizational context and managerial interpretations as indicators of a company's decision to adopt an environmental strategy
5	Christmann et al. (2000)	57	1,176	The importance of complementary assets in the impact of environmental management "best practices" on cost advantage
6	Gimenez et al. (2012)	51	419	A study of the past, present, and future of the buyer-supplier dyad interactions in the context of sustainable procurement
7	Nidumolu et al. (2009)	49	947	Why innovation is now primarily driven by sustainability
8	Zhu et al. (2005)	44	779	Green supply chain management in the Chinese automotive industry: challenges, procedures, and outcomes
9	Cheng et al. (2014)	44	1,225	Financial accessibility and corporate social responsibility
10	Daily et al. (2001)	41	516	Paying attention to human resource concerns in environmental management can help achieve sustainability

Source: Compiled by the researcher with the help of R studio

describes how a sustainable supply chain supports other company operations and, in turn, contributes to the organization's sustainability. Overall top ten most locally cited articles in this corpus are collectively 587 local citations and 10,383 global citations.

5.3 Country performance

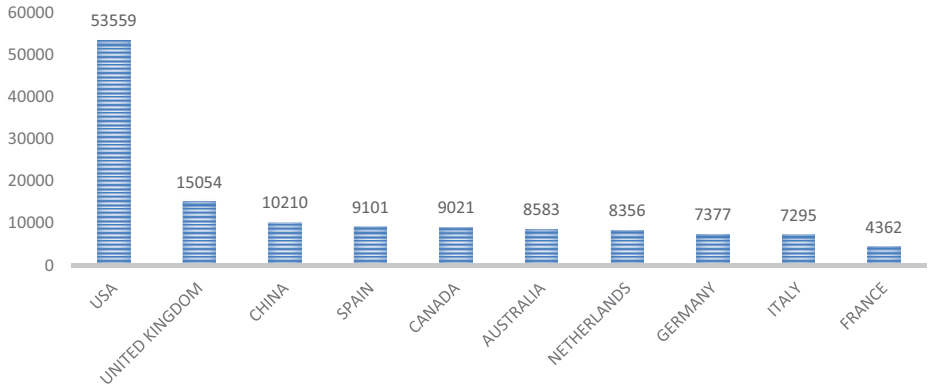
Authors from 97 different countries contributed articles on parameters of sustainability in context of the micro-enterprise in this particular corpus. [Figure 3](#) represents the ranks of countries on the basis of their total citation in this area of research. The top 10 countries account for 79% of the total number of citations in this corpus.

The top four nations with over 87,000 citations are the USA, the UK, China and Spain. Of them, the USA has the most, with 53,559 citations, or 31% of all citations. So it can be clearly said that the USA is dominating the research in this area. India is not even in the top 10 countries so there is a need for the study of parameters of sustainability in the context of micro-enterprise.

5.4 Word occurrence analysis

A co-word analysis provides the most often occurring keywords to demonstrate the significant issue of the study. The high number of occurrences is indicated by the bigger word size and vice versa. In [Figure 4](#), sustainability, sustainable development and corporate social

TOP 10 COUNTRY WITH TOTAL CITATION



Source: Compile by the researcher by using R Studio and MS Excel

Figure 3. Top ten countries on the basis of their total citation



Source: Compiled by the researcher by using R Studio

Figure 4. Co-word analysis

responsibility are the most occurred word with occurrences of 567, 309 and 270, respectively. It means that most of the articles discuss sustainability, sustainable development, corporate social responsibility, innovation, entrepreneurship, performance, supply chain management, competitive advantage and environmental performance.

The result of co word occurrence analysis implies that in the selected corpus of the study most of articles used corporate social responsibility, innovation, entrepreneurship, performance, supply chain management, competitive advantage and environmental performance as a parameters to measure sustainability in context of micro-enterprise.

The performance and sustainability of MSME enterprises are positively impacted by financial resources, government assistance and business experience (Pratama and Zaki, 2024).

5.5 Co-occurrence network

This co-occurrence network has been drawn with the help of VOSviewer (see Figure 5). This co-occurrence network represents the occurrence of words with another word.

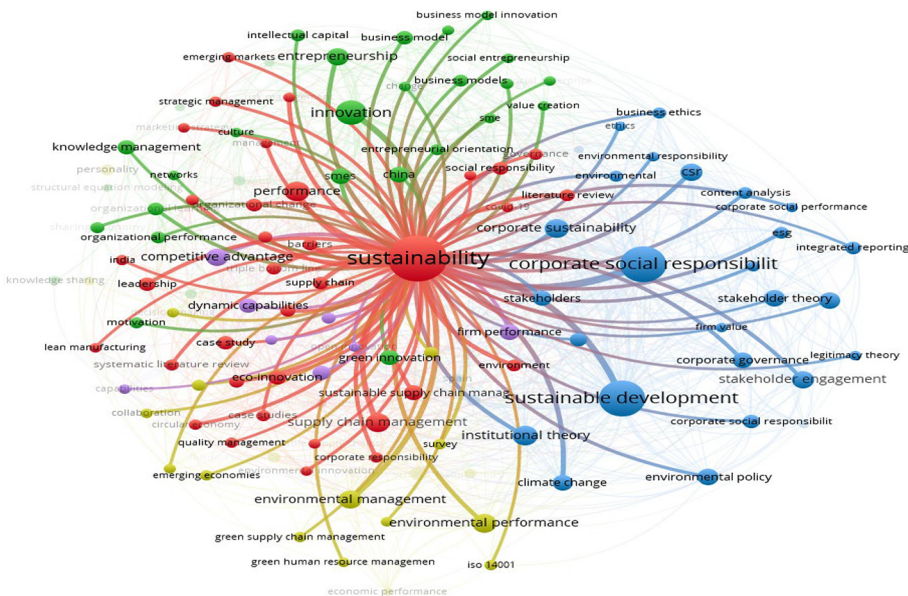
The greater the nodes higher the number of occurrences and the thinner the lines show the lower number of occurrences together.

This network states that the maximum number of studies has been done on corporate social responsibility, innovation entrepreneurship, performance, environmental performance, organization culture and personality with sustainability and there are very few studies on the business model, emerging market and trust with sustainability. So, future researchers can focus on this area which is not researched well to develop new parameters of sustainability.

6. Data abstraction and analysis

Sustainable development, as defined by the Organization for Economic Cooperation and Development, is the utilization of the biosphere by current generations while preserving its potential benefits for future ones. World Bank defines sustainable business as the process of taking into account the environmental, societal and governance parameters when making operational and investment decisions in the business, leading to increased longer-term sustainable economic and competitive advantages to the business.

In the 1990s, sustainability became a hot topic in the public consciousness and attracted a lot of intellectual and political interest. It is still a developing field. Sustainability is the capacity to sustain or continue a process over an extended period of time. It entails the prudent management of resources in natural and social contexts to guarantee long-term ecological balance, social well-being and economic viability (Mollenkamp, 2023) wherein



Source: Compiled by the researcher with the help of VOSviewer

Figure 5. Co-occurrence network

sustainable development is defined as an international concept that strikes a balance between present and future demands in terms of social, environmental and economic aspects (United Nations, 2024). Again, corporate sustainability describes an approach to business that builds value over the long term by seizing opportunities and controlling risks associated with social, environmental and economic advancements. According to Online Business UMD (2024), supply chain management is the management of the flow of goods and services, including all processes that convert raw materials into final products. Innovation, on the other hand, is the process of converting an idea or invention into a good or service that creates value or for which customers will pay (Efstathiou, 2021).

Sustainable development concerns have altered the corporate environment and become important factors of economic performance. The biggest businesses, in particular, incorporate sustainability initiatives into their corporate strategies to reap long-term rewards (Martins *et al.*, 2022).

Many businesses have joined sustainability programmes addressing social, corporate and environmental issues, but micro-enterprises are still unfamiliar with the term (Yu and Bell, 2007). Despite their significant role, many micro-enterprises have little interest in ecological issues and frequently lack the resources and skills necessary to include ecological work in their environmental initiatives. They are less knowledgeable about environmental management, do not value this idea and are unable to make the connection between environmental management systems and their advantages (Aghelie, 2017; Musa and Chinniah, 2016). Small businesses have a significant overall environmental impact that may be greater than that of major corporations (Musa and Chinniah, 2016; Wattanapinyo and Mol, 2013).

The sustainability of micro-enterprises depends on various factors or parameters across the globe. The systematic review and bibliometric analysis of the selected literature revealed some significant parameters responsible for the sustainability of the micro-enterprises which are summarized in following Table 3.

7. Future research scope

As stated by the word occurrence analysis and co occurrence analysis it can be seen that there has been very few research on environmental management, business model innovation, intellectual capital, gender diversity, organizational learning, knowledge management, organizational culture, motivation among the employee or director, business ethics, social innovation and marketing strategy with the sustainability of micro-enterprise. So future research can be done on these topics to find out the importance of these factors to measure the sustainability in context of micro-enterprise.

8. Conclusion and implications

Based on a thorough evaluation of the literature, the research effort shows that micro-enterprise sustainability is important for the national economy since it increases employment and adds to GDP in any given nation. The number of publications in the area of sustainability has increased significantly after the introduction of SDGs by the United Nations in 2016. At the same time, the articles in the area of MSMEs are also increasing with the increased focus of the government in this sector. The present study tries to incorporate the global and national literatures that aim to focus on the parameters on sustainability of the micro-enterprises.

The study has considered 4,464 articles published from 2000 to 2022 and highlighted the 10 most cited articles in this particular area. The top countries with the most citations have been shown and it was found that India is not on the top list. Sustainability, sustainable development and corporate social responsibility are the most frequently used words in the literatures. The

Table 3. Parameters for sustainability of micro-enterprises

Sl. no.	Parameters	Sub-parameters	Source
1.	Demographic factors	Education, availability of financial services, marketing opportunities, physical infrastructure, political instability due to gender, reluctance in the family, changes in sociopsychology and the presence of an entrepreneurial culture. Economic and social factors, technological and psychological factor, institutional factors; financial literacy, learning and adoption	Malhotra and Riley (2009); Galindo and Méndez-Picazo (2013); Wennekers <i>et al.</i> (2005); Baumol and Strom (2007); Chatterjee <i>et al.</i> (2017); O'Neill <i>et al.</i> (2009); International Labour Office (2004); Austin <i>et al.</i> (2006); Audretsch (2012); Duflo (2020); Doepke and Tertilt (2009); Ryder (2010); Afif and Setiawan (2024); Mutasowifin and Sutisna (2023); Bhargava and Rana (2023)
2.	Sustainable innovation	Making the most of new technologies includes adopting and optimizing digital technologies, eco-innovation, socio-technical systems, web-based goods and services, and technological, organizational and social innovation	Ghaziani and Ventresca (2005); Linder and Cantrell (2000); Tikkanen <i>et al.</i> (2005); Carrillo-Hermosilla <i>et al.</i> (2010); Charter <i>et al.</i> (2008); Geels (2005); Boons and Lüdeke-Freund (2013); Khurana <i>et al.</i> (2022); Kirana <i>et al.</i> (2024)
3.	Entrepreneurship	Education, training and experience, ability to perform basic duties, ability to resolve conflict, analytical ability, ability for negotiation and communication and leadership ability, risk taking, marketing and bargaining self-confidence regarding self-efficiency, optimistic attitude, self-commitment and ethical view	Haynes <i>et al.</i> (2000); Ketkar <i>et al.</i> (2012); Collings and Mellahi (2009); Havinal (2009); Haynes <i>et al.</i> (2000); Amrita <i>et al.</i> (2022); Rajan and Panicker (2020)
4.	Regulatory framework	Law, regulation, incentives like loans, grants, tax breaks and other financial advantages make adoption and change in SMEs towards sustainable practices	Harper (2003); Haynes <i>et al.</i> (2000); Gandhi <i>et al.</i> (2018); Ahamed and Raju (2023); Maheshkar and Soni (2021)
5.	Capability to start an enterprise	The knowledge that can be gained from pre-start-up market survey, relevant support services and steady supply of raw materials	Ketkar <i>et al.</i> (2012); Murtini <i>et al.</i> (2024); Triyani <i>et al.</i> (2023)
6.	Competency of enterprise	Operational competency, competency in the use of marketing tools and techniques, adequate use of finance, proper use of pricing method, cost-effective production technique and enhancing growth potentials	Baran and Velickait (2008); Haynes <i>et al.</i> (2000); Mardikaningsih <i>et al.</i> (2022); Esubalew and Raghurama (2020)
7.	Structural reform for sustainability	Easing product market regulations, easing employment protection legislation, tax structure reform, research and development, active labour market policies and reforms to increase female labour force participation	IMF and OECD; Sharma and Rai (2023); Hudnurkar <i>et al.</i> (2023); Onyeje <i>et al.</i> (2022)

(continued)

Table 3. Continued

Sl. no.	Parameters	Sub-parameters	Source
8.	Sustainable value chain	Value proposition supply chain, client interaction, financial assistance, type of product or service demand and competitiveness	Boons and Lüdeke-Freund (2013) ; Geels (2005) ; Seuring and Müller (2008) ; Maas and Boons (2010) ; Nugroho et al. (2024) ; Machado et al. (2024)

Source: Compiled by the researchers

majority of studies have been done on corporate social responsibility, innovation entrepreneurship, performance, environmental performance with sustainability and very few on the business model, emerging market and trust with sustainability. Finally, the study found eight parameters for the sustainability of micro-enterprises, i.e. demographic factors, sustainable innovation, entrepreneurship, government, capability to start an enterprise, competency of enterprise, structural reform for sustainability and sustainable value chain.

The findings and conclusion of the study may be helpful for the academicians interested in the area. The study will also help to understand the linkage between sustainability and micro-enterprises. The network analysis will guide the researchers to find out the interaction of the sustainability with other areas. The academicians may be beneficial from the scope of the future research mentioned in the study.

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