



Two decades of the bottom of the pyramid research: identifying the influencers, structure, and the evolution of the concept

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Abstract

This paper reviews the literature on the bottom of the pyramid (BoP) across disciplines using systematic literature review (SLR). It explores the evolution of literature over the last 20 years, beginning with the work of C.K. Prahalad. A systematic search resulted in 665 publications related to BoP in various journals. This paper analyses these BoP publications from the start of the concept until 2018 using bibliographic data and thematic analysis of the entire text of the most influential papers. The analysis involves identifying trends in publications and citations, most-cited journals and papers, most productive and influential authors in the field. The results indicate a surge in BoP research. We also find that the focus of the research has shifted to newer disciplines. A thematic analysis of the top 151 papers in BoP indicates the domain's evolution over the years. Overall, the results suggest a sustained and growing interest in BoP. The findings also indicate a shift in focus and nature of the research over the years.

Keywords Bottom of pyramid · Systematic literature review · Citation analysis · Thematic analysis

JEL Classification M00 · M1 · M30

1 Introduction

The low-income consumer markets worldwide are estimated to be at least \$ 5 trillion per year and are expected to grow faster than the world GDP (Sheth 2021). These markets, also known as the *bottom of the pyramid*, present a tremendous market opportunity for marketers. Bottom of the Pyramid (BoP) is a relatively new concept

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in management literature and focuses on consumers belonging to the resource-constrained and economically weaker section. Prahalad (2012) defines it as the market consisting of over 4 billion people living on less than \$2/day. The World Resources Institute defines the BoP as people with under \$3000 in annual local purchasing power and estimates around 4 billion people globally to be in this definition. This section of people is spread over several countries and continents worldwide and can be segmented further based on culture, capabilities, literacy, income, etc. (Prahald 2012). Majority of the BoP population is in China, India, and Brazil. Although, the market opportunity at the bottom of the pyramid is estimated to be around \$5 trillion (World Resources Institute 2007), this opportunity was not taken seriously by firms across the world until the early 2000s. The concept in its current form was first introduced by C K Prahalad and Stuart Hart in 1999 in a working paper titled *Strategies for the bottom of the pyramid: Creating sustainable development*. The last few years have witnessed rapid growth in publications in BoP and an expansion in the focus of the publications.

We use bibliographic data to review the literature on Bottom of the Pyramid. The Systematic Literature Review (SLR) approach identifies all the articles published in BoP until 2018. An attempt is made to understand the landscape of BoP using analysis of bibliographic data and thematic analysis. SLR has been widely used in the management literature (Crossan and Apaydin 2010; Newbert 2007; David and Han 2004) because of its objectivity and replicability (Hallinger 2013). When the research field is relatively new, and studies do not address common research questions, it is most suitable to see the distribution of publications over years, journals, and subjects (Mari and Poggesi 2013; Tranfield et al. 2003). Accordingly, we use SLR in this study to understand the state of existing literature on BoP, leading researchers, journals, significant themes in this field over the last 20 years, and their evolution. Given the increasing importance of BoP markets in emerging economies such as India, it seems worthwhile to study the focus of existing literature and identify the gaps, if any. Bibliometric methods, such as citation analysis, are considered objective measures in the evaluation (Zupic and Čater 2015). Bibliometric studies help understand the structure of a discipline and identify links between different disciplines. Such studies are also instrumental in identifying the clusters and the gaps in literature (Block and Fisch 2020). Citation analysis is an extensively used bibliometric method to understand an academic discipline's structure and research activity (Radicchi et al. 2008). Citations reveal the influence of a particular work and the author(s) (Culnan 1986; Acedo and Casillas 2005).

To the best of our knowledge, Follman (2012), Kolk, Rivera-Santos, and Rufin (2014), and Dembek et al. (2019) are the only studies that have reviewed the research on BoP. Follman (2012) qualitatively reviews 40 most cited research works, including articles and books on BoP, to understand the conception of BoP and the differences between the first two generations of the concept during the first ten years. The paper concludes that while the *second generation* of literature builds upon certain *first-generation* concepts such as lowering prices and mutual benefit, it also plays down some ideas related to the exploitation of poor consumers by viewing them primarily as consumers. As identified by the paper, the second generation of literature considers engaging the BoP population at various stages of the business model.

The authors suggest applying an integrative shared value approach to address this segment.

Kolk et al. (2014) also review the first ten years (2000–2009) of the BoP literature, but they carry out a systematic literature review of 104 articles which is much broader than Follman (2012). They provide a framework with three aspects to organize the BoP studies – initiator, business model, and outcome. They identify the current status of the literature, major outlets, and primary disciplinary focus of BoP works and the position of poor in the value chain – consumer, producer, or a channel partner. The authors conclude that the BoP literature evolved into a relatively more complex concept within the first ten years and extends beyond the multinational enterprises (MNEs). The study advocates integrating the development economics literature with BoP literature and exploring the possibility of redefining the BoP population by including dimensions such as lack of education, ill-health, exclusion, etc.

Dembek et al. (2019) assess the evolution of the concept until 2016, identify gaps in the literature, and comment on the state of the research. They conducted a systematic review of 276 papers using correspondence analysis and further examined selected 22 empirical studies published over 16 years to assess the evolution of BoP over 1.0, 2.0, and 3.0. BoP 1.0 is defined as the earliest stage of the concept that advocated selling to the poor in terms of the potential of profitably serving them and alleviating poverty. Faced with criticism for treating the vulnerable poor as consumers, the next few years of BoP literature starting from 2008 was defined as 2.0. It focussed on involving the BoP population as a collaborator for *business co-venturing*. Further evolution of the field is reported in the form of BoP 3.0 that started around 2015 and focussed on sustainable development approaches to poverty alleviation. However, the authors also note that the literature has come a full circle, and the recent studies continue to consider the BoP population as a consumer.

While each of the existing literature reviews on BoP has contributed to our current understanding of the BoP landscape, they also have limitations. Follman (2012) follows a subjective methodology to select the research work to be reviewed. Additionally, the paper does not consider all the 250 papers (till that time) on the topic. The analysis used in this paper is based on the nature of the content. It does not use objective methods such as using bibliographic data to understand the structure of the domain. Kolk et al. (2014) select the literature through an objective process. However, due to its age, the article does not cover the most recent BoP literature. The paper uses bibliographic data to a limited extent, and a large part of the analysis, including the evolution of the concept, is done manually and hence, might be biased. Majority of the BoP papers have been published after 2008–2009 and are not covered by Follman (2012) and Kolk et al. (2014). On the other hand, while Dembek et al. (2019) review the BoP literature published till 2016, they review selected papers. A subjective assessment is made to identify papers having BoP focus, thus excluding many publications.

In this context, this paper addresses the following research questions: 1. What are the trends in BoP publications over 20 years in terms of the number of publications; number, nature, and quality of journals; the impact of publications; authors, and authorships? 2. What are the significant themes in BoP literature, and how have

they evolved over the years? As of now, no paper consolidates the entire BoP literature objectively in terms of publication trends, major publication outlets, nature and quality of journals, most influential authors, co-authorships, and the major themes and their evolution over the entire lifetime of BoP. This paper bridges this research gap. It reviews the literature over the entire 20-year period of BoP, using quantitative analysis of the bibliographic data, and avoids subjectivity and biases. Kolk et al. (2014) is the only literature review using bibliographic information but does not cover literature published after 2009. This paper reviews 665 BoP studies; hence, it has a much broader coverage and selects articles objectively. This study is expected to improve the understanding of the intellectual structure of the field. We consider the *bottom of the pyramid* as a context; hence, studies across disciplines are included. The number of articles reviewed in this study is almost three times the highest number of articles reviewed in any existing literature review on BoP. This study is the first attempt to consolidate twenty years of BoP literature without bias. Thus, this paper covers an additional duration of research compared to the one reviewed by Follman (2012) and Kolk et al. (2014) by extending it to the next decade. At the same time, it ensures a much broader coverage of BoP articles than Dembek et al. (2019), which might be suitable for understanding the domain's overall landscape. This paper predominantly uses objective analysis and reports the critical aspects of the literature that are likely to benefit researchers, practitioners, or policymakers getting introduced to this domain. While this study extends the work done by Follman (2012) and Kolk et al. (2014) to a new time frame, it also reveals newer details about the research and researchers in this domain which was previously not captured in any of the studies, including Dembek et al. (2019).

2 Review of literature

A literature review is considered as a critical instrument in management research to manage the diversity of knowledge in the context of any specific academic inquiry (Tranfield et al. 2003). The primary purpose of a literature review is to summarize and categorize knowledge in a particular domain (Fisch and Block 2018). Literature reviews in management are often criticized for the researcher's bias and lack of critical assessment (Hart 1998). Systematic literature review (SLR) is suggested as an alternative to overcome the shortcomings of traditional literature review (Tranfield et al. 2003). SLRs are used for different purposes –map and assess the existing intellectual territory, specify a research question, further develop the current body of knowledge, inform policy-making and practice, and consolidate the existing research and advance it further (Ritz et al. 2016).

Unlike traditional literature reviews, SLRs involve an exhaustive literature search and mention details of an audit trail of the reviewers' process, the decisions taken (Cook et al. 1997), and the rigorous methodology followed to identify and gather information (Petticrew, 2001). As a result, SLRs are considered to be better in terms of quality as the process employed limits selection biases and is transparent and reproducible (Tranfield et al. 2003), reduces chance effects, and increases the legitimacy of data analysis leading to more reliable results (Reim et al. 2015; Briner and

Denyer 2012). SLR typically comprises of the following stages: (i) problem definition; (ii) selection of journals; (iii) selection of studies; (iv) critical appraisal and evaluation; and (v) synthesis. Depending upon the nature of the analysis, the synthesis stage may involve researcher's subjective interpretation.

Citations are referred to as "*frozen footprints in the landscape of scholarly achievement*," which could reveal forms of interaction amongst researchers and, hence, delineate a discipline's structure (Cronin 1998; Üsdiken and Pasadeos 1995). Citations indicate the influence of the work that has been quoted (Acedo and Casillas 2005). The influence of a particular author, paper, or journal can be estimated using its respective citations as a proxy (Culnan 1986). A regularly cited publication should be considered as conveying crucial scientific knowledge that is used as a foundation for further elaboration (Casillas and Acedo 2007). Citation counts were first used by Gross and Gross (1927) to evaluate the importance of scientific work.

Analysis in management research papers using SLR can be categorized broadly into three types: (i) citations-based classification and analysis, (ii) nature of the research-based classification and analysis, and (iii) thematic analysis. While the first two are descriptive and have less potential for researcher bias, thematic analysis depends on the researcher's judgment and interpretation. However, at the same time, a thematic analysis is likely to offer more qualitative insights compared to citation or research-based classification. In the past, SLR has been used to identify the volume of research per year (Rosca et al. 2018), most influential articles (Reim et al. 2015), number of first-time authors by year (Ritz et al. 2016), top authors by citation and h-index, top journals, trends in publication, citations and dominant years (Coombes and Nicholson 2013).

Studies have employed different measures to assess the influence of a journal or author, or article. Researchers have also explored the nature of articles – quantitative or qualitative (Parris and Peachey 2013); empirical or theoretical; themes of all or most cited articles (Crossan and Apaydin 2010); identification of streams of literature, perspectives of different types of firms (Rosca et al. 2018) or industries (Adams et al., 2016). Studies such as Mariani et al. (2018), Zorzini et al. (2015), and Hüttinger et al. (2012) review the articles based on the research context, research topic, source, and type of data, data analysis, and techniques. Islam and Rahman (2016) analyze the context of the study across the periods. Liñán and Fayolle (2015) categorize papers into different research areas and themes and then recognize research gaps within these themes. Based on the literature mentioned above, we arrive at the methodology used for review, explained in the next section.

3 Methodology

There are two parts to the methodology used in this paper. First, the authors identify the research papers to be reviewed as per a typical systematic literature review (Fig. 1). The research papers identified through the search process are analyzed in the next stage. The analysis used in this paper is predominantly quantitative using bibliometric data and hence, objective. After the quantitative analysis, the themes of

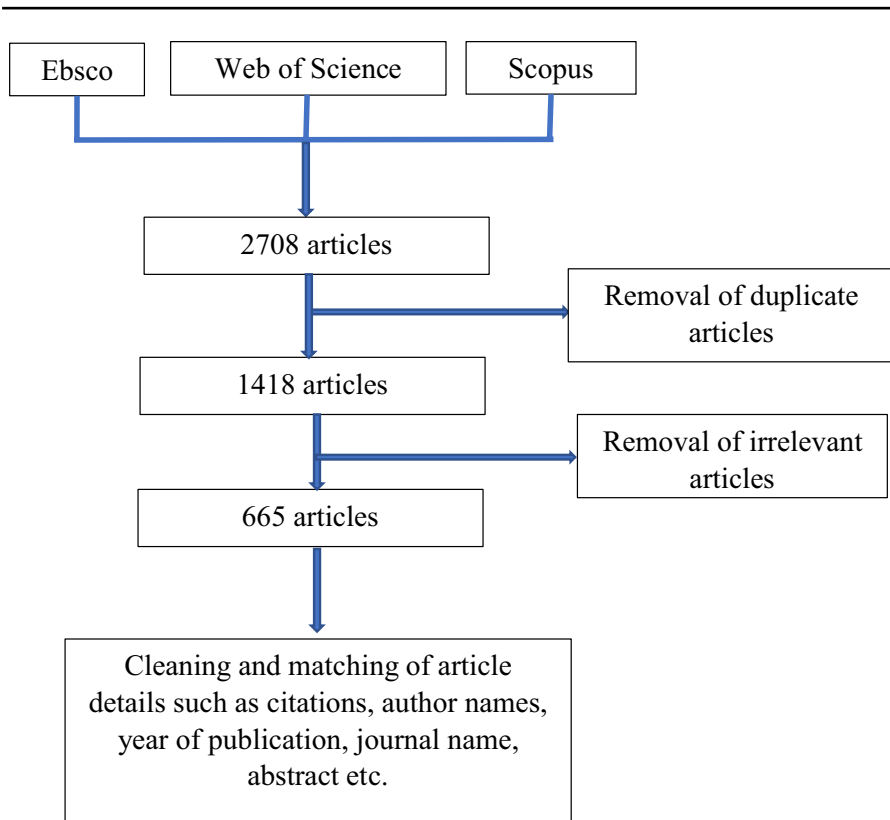


Fig. 1 Flow diagram of the systematic review

research are analyzed using the NVivo 12 software. The stepwise process is given below:

Step 1 Decision on databases.

This study uses three electronic databases – Ebsco, Scopus, and Web of Science, to identify BoP literature. Multiple databases were selected for triangulation (Kuckertz and Block 2021) to minimize the probability of a relevant paper being omitted from the set to be analysed.

Table 1 Search result details

Keyword	Ebsco	Web of science	Scopus
Bottom of the pyramid	311	205	280
Bottom of pyramid	41	34	51
Base of the pyramid	255	262	339
Base of pyramid	21	22	40
BoP+ pyramid	402	177	268
Total	1030	700	978

Step 2 Defining the scope.

The search process for creating a pool of articles was carried out in March 2019, and only journal articles were included as they are deemed to be validated and have undergone a peer-review process (Podsakoff et al. 2005). All journal articles published from 1998 to 2018 were considered for review. Many articles related to BoP have been published in practitioner-focused journals such as Harvard Business Review or California Management Review. Therefore, articles appearing in these journals were also retained. Editorials, introduction to an issue, award announcements, book chapters, conference proceedings, extended abstracts, reviews, and working papers were not considered for the study to ensure that only high-quality published work was included (Seuring and Müller 2008). Only the articles appearing in the English language were selected (Follmer and Jones 2018). No restriction or exclusion was made about the category of the journal.

Step 3 Search of articles.

In this stage, the keywords were identified for the search. "*Bottom of pyramid*," "*bottom of the pyramid*," "*base of pyramid*," "*base of the pyramid*," and "*BoP + pyramid*" were used as the keywords. Four versions of the keywords were used because it was observed that they were used interchangeably across studies. "*BoP + pyramid*" was used because "BoP" as a word alone has been used in several studies in contexts other than the one under consideration. Multiple search iterations were done before arriving at the final search results to ensure that the keywords returned relevant results.

Keywords were looked up in three fields—title of the paper, keywords, and abstract. Boolean operator – 'OR' was used during the search so that the article appears in the search result even if the keyword appeared in only one of the three fields. Mention of BoP in title, abstract, or keywords would mean that the concept was essential to the paper. Hence, only the papers focussing exclusively on BoP appeared in the search results. The details of search results are given in Table 1.

Step 4 Cleaning the data.

A total of 2708 articles were obtained after the search from the three databases, and 1418 unique articles were obtained after removing duplicate entries. These articles were checked manually for relevance based on their abstract. In some cases, the abstract did not clarify the topic, and the full text was referred to establish its relevance for the study. Ascertaining the relevance was done based on the judgment of the authors. Some of the BoP articles identified through the search were from disciplines, such as Engineering, Science, and International Trade, with absolutely no connection to Management literature. Such articles were removed from the dataset, and the remaining were rechecked for keywords in the title, abstract, and keywords. In the end, a total of 665 articles were identified as relevant to this study.

Step 5 Article details.

For all the articles filtered through step 4, fields such as title, author, abstract, keywords, publication date, volume, issue, and page number, were obtained from the databases. The citation counts for several articles were either different across the databases or missing altogether. Hence, the citation count for all the articles was taken manually from Google Scholar over two days. The usage of citation data from

Google Scholar is supported by its more comprehensive coverage (Kulkarni et al. 2009), accuracy, and comprehensiveness (Meho and Yang 2007).

Step 6 Analysis.

The analysis in this paper is done in two phases. The first phase includes analysis using bibliographic data on 665 articles to identify the publication trends, journals, articles, and authors who have impacted the research on BoP. In line with Block and Fisch (2020), the analysis includes several layers starting from description and summary of data regarding the number of articles, journal names, authors, journal classification, etc. Given that quantitative data's ability to offer qualitative insights is limited (Vallaster et al. 2019), a thematic analysis is done for the top 151 publications (by total citation counts) in BoP. Article abstracts and keywords are considered to carry information that can be used to identify clusters of topics (Block and Fisch 2020). In this case, we use the entire text of the paper to identify the clusters using the software. The benefits of qualitative analysis in SLR outweigh the limitations previously (Kraus et al. 2012; Xi et al. 2015). We try to minimize the subjectivity during the thematic analysis by using software to extract themes. The findings related to citation and thematic analyses are presented in the next section.

4 Analysis

4.1 Analysis using bibliographic data

C K Prahalad and Allen Hammond authored the first article on BoP in Harvard Business Review (2002) that positioned the BoP markets as a lucrative source of growth for multinationals, and serving these markets could improve the lives of billions of poor people. Before this, BoP found an indirect mention in Prahalad and Lieberthal (1998), followed by a complete explanation in Prahalad and Hart's work

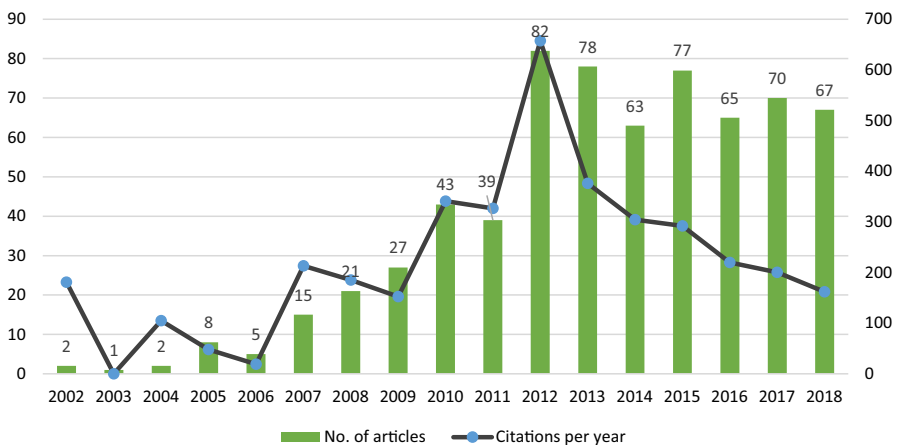


Fig. 2 No. of articles published per year. *Source* Compiled by authors based on journal databases

in 1999. Since then, the interest in BoP seems to have increased gradually (Fig. 2), with the research activity being ten times more in the second decade (2009–2018) compared to the first decade (1998–2008). 2012–2015 saw a surge in the number of articles published, and the interest in the topic continues to sustain till date. The first two articles – Prahalad and Hammond (2002) and Hart and Christensen (2002) are amongst the most impactful works on the subject. Hart and Christensen (2002) argue that disruptive innovations will ensure sustainable corporate growth with social responsibility for firms serving BoP markets. This concept, going ahead, formed the basis of several business models in BoP that leveraged innovation for making affordable offerings for BoP. Later years, such as 2012, 2013, 2011, and 2010 witnessed a surge of articles on the subject, attesting to the field's heightened interest. The volume of the work influences these numbers on total citations. However, as per the average citations per year, 2002 (92) is the most critical year in BoP literature, followed by 2004 (52) and 2007 (14). Important papers published during this period are that of Prahalad and Hammond (2002), Hart and Christensen (2002), and London and Hart (2004) and can be considered as seminal works in this field. London and Hart (2004) evaluate the BoP markets from an *International Business* lens and argue that MNCs need to recognize that the emerging markets are different. Hence, the strategies need to be socially embedded. They also mention the limitations of the transnational model and suggest ways to approach emerging markets. Several business models that came up later can be seen to have elements explained by London and Hart (2004). Overall, it looks very natural that these three papers are the most important and seminal works in BoP literature.

Total citations per year, calculated by dividing total number of citations by the article's age, indicate the impact of articles published during a particular year. Table 2 shows that the interest of researchers in this field has grown over the years. 2011–2014 has the highest number of total citations, followed by 2007–2010, primarily due to many publications on the topic during these years. This indicates that researchers are getting increasingly interested in exploring this domain. The initial period of 2002–2006 has the highest impact (average citations) despite a limited number of published articles. This also suggests that despite an extensive recent literature on BoP and the criticism of the aspects of BoP, the initial conceptualization of BoP is still relevant.

The database used for the analysis consists of articles published in 357 unique journals. *Information Technologies and International Development* (ITID) (12) and *Journal of Cleaner Production* (JCP) (11) have published the highest number of

Table 2 No. of articles published and total citations per year for different periods

	Total articles published	Total citations	Average citations	Citations per year
2002–2006	18	5573	309.6	353.1
2007–2010	106	9192	86.7	892.1
2011–2014	262	10,991	42.0	1576.3
2015–2018	279	2390	8.6	874.3

articles (Table 3). Most of the ITID articles focus on ICT and mobile technology—a development that connected the BoP markets with the rest of the world and enabled the delivery of several services, especially financial products, to these markets. On the other hand, JCP articles have an apparent focus on sustainability, and the focus has increased in the last few years. The top journals in terms of impact (citations received) are *Harvard Business Review* (3018), *California Management Review* (1714), and *Journal of International Business Studies* (1559). These journals have published mostly conceptual and case studies on BoP. At the same time, we do not find any research published in these journals in recent years. The top journals, as per average citations, are the *Journal of International Business Studies* (779.5), *MIT Sloan Management Review* (519.0), and *Journal of Management* (396.0). Thus, productive journals (based on the number of publications) are not necessarily the most impactful journals (total citations and average citations). These journals span wide range of areas, such as business, management, ethics, marketing, policy, and information systems. Several journals are cross-disciplinary, hinting at the potential for the BoP research to have a broader impact and grow further across disciplines. Till 2008, most of the BoP articles were published in journals with a broader focus on management, international business, or business strategy. Since 2008, journals in marketing, information technology, entrepreneurship, and ethics started publishing BoP articles indicating an acceptance of the widening boundaries of the BoP research.

Like Kolk et al. (2014), we also find that the practitioner-focused journals publishing BoP research had more impact on future research in the domain. However,

Table 3 Top journals by number of articles, total citations and average citations

Rank	Journal	No. Of Articles	Rank	Journal	Total Citations	Rank	Journal	Avg. citation
1	JBR	16	1	HBR	3018	1	JIBS	779.5
2	JBE	14	2	CMR	1714	2	MSMR	519.0
3	JCM	13	3	JIBS	1559	3	JMAN	396.0
4	ITID	12	4	MSMR	1557	4	AMP	380.3
5	JCP	11	5	JBR	1202	5	HBR	335.3
6	GMI	10	6	JPIM	1142	6	EMR	248.0
7	JPIM	10	7	AMP	1141	7	CMR	244.9
8	HBR	9	8	JCM	1133	8	RP	227.0
9	MT	9	9	JMS	874	9	JMS	218.5
10	FASR	8	10	JMAN	792	10	JMAR	201.0
11	IJBG	8	11	ETP	667	11	ETP	166.8

JBR Journal of Business Research, *JBE* Journal of Business Ethics, *JCM* Journal of Consumer Marketing, *ITID* Information Technologies and International Development, *JCP* Journal of Cleaner Production, *GMI* Greener Management International, *HBR* Harvard Business Review, *JPIM* Journal of Product Innovation Management, *MT* Marketing Theory, *FASR* Field Actions Science Report, *IJBG* International Journal of Business and Globalisation, *CMR* California Management Review, *JIBS* Journal of International Business Studies, *AMP* Academy of Management Perspectives, *MSMR* MIT Sloan Management Review, *JMS* Journal of Management Studies, *JMAN* Journal of Management, *ETP* Entrepreneurship Theory and Practice, *EMR* European Management Review, *RP* Research Policy

Table 4 Citations of articles classified by ABDC journal category

ABDC Category	No. of articles	Total citations	Average citations	Total citations per year
A*	44	4968	112.9	722.9
A	171	13,541	78.7	1655.4
B	87	2344	26.9	355.0
C	112	3609	32.2	399.4
Others	251	3774	15.0	650.9

Table 5 Citations of articles classified by ABS journal category

ABS category	No. of articles	Total citations	Average citations	Total Citations per year
4*	16	3631	226.9	379.5
4	32	3107	97.1	480.5
3	123	12,500	101.6	1463.3
2	110	2644	24.0	512.6
1	76	1963	25.8	250.1
Others	308	4301	13.9	697.6

the second decade of BoP research is dominated by academic journals such as the *Journal of Business Research (JBR)*, *Journal of Business Ethics (JBE)*, *Information Technologies and International Development (ITID)*, etc. The research published in JBR has a broader focus ranging from innovations across different sectors to consumer behaviour of BoP people. JBE, on the other hand, published articles on the ethical issues in microfinance and the overall approach of market development at BoP, including corporate social responsibility. Thus, BoP, which originated with works published in practitioner-focussed journals, has now gained acceptance in academic literature. The initial literature published on BoP (mainly case studies) had relatively more relevance/impact for practitioners. However, the recent studies have an academic focus and link BoP to concepts such as institutional voids and divide, conspicuous consumption, social capital, sustainability, etc. While the practitioner-focused research used case studies to advocate the business case for targeting BoP as a consumer, the academic research covers specific issues related to organizations, consumers, public policy, collaborations between different entities, ethics, etc.

Next, the articles published in BoP are classified into ABDC and ABS journal listing categories (Tables 4 and 5). The Australian Business Deans Council (ABDC) journal quality list is accepted worldwide and enjoys good credibility and reputation among the administrators and faculty of business schools (Zainuba and Rahal 2015). The ABS Journal Quality Guide is considered to have comprehensive coverage and a high level of internal and external validity (Morris et al. 2009). Accordingly, the work published in these two lists is likely to have better quality and a more

significant influence on the topic in the future. 414 articles are classified under the ABDC journal list, while 251 articles are not in the list. Most of the BoP articles are published in A category journals followed by C and then B. A* journal articles have much higher average citation and average weighted citations than other category articles. The research has been published in good-quality journals and has received good citations. This indicates the acceptance of increasing importance and the studies' deep insights. Articles in C category have higher average citations than B category articles indicating that even lower-ranked journals have published relevant research and impacted other research work in the domain. Research published in journals not listed in ABDC has the most negligible impact.

Most of the BoP articles were published in category 3, followed by categories 2, 1, and 4 of ABS classification. Like ABDC, in ABS listing, 4* journal articles are the least in numbers but have the highest average citations followed by category 3 and 4. The most cited BoP work appears in category 3 and 4 journals, along with 4*. Articles published in non-ABS-listed journals have the least average citations. Similar to ABDC, the ABS classification of BoP articles also suggests a widespread acceptance of the BoP research in top-quality journals.

Further, the articles are classified based on the field of research (Tables 6 and 7). Most of the articles are published in the Management and Marketing/Tourism/Logistics field of research in ABDC. The impact of articles published in Management and Marketing/Tourism/Logistics is the highest, followed by Economics and Information Systems.

Majority of the articles listed in ABS belong to Ethics – CSR—Management, and Marketing, followed by Innovation and International Business and Area Studies. The total citations, hence the impact, are the highest for articles in Ethics – CSR – Management, International Business, and Area Studies and Marketing. So far, the focus of research in this domain has been mostly business management (generic studies), marketing, and international business. Next, we see if the focus of BoP research has changed over the years.

Table 6 Citations of articles classified by ABDC field of research

Area	No. of articles	Total citations	Average citations	Total citations per year
Management (1503)	253	18,999	75.1	2338.7
Marketing/tourism/logistics (1505)	111	4052	36.5	575.1
Non-ABDC	251	3774	15.0	650.9
Economics (1402)	19	484	25.5	93.3
Information systems (0806)	17	480	28.2	75.1
Other commerce etc. (1599)	9	246	27.3	30.4
Economic (1499)	1	77	77.0	9.6
Finance (1502)	2	27	13.5	6.2
Marketing/tourism/logistics (1507)	1	6	6.0	3.0
Marketing/tourism/logistics (1506)	1	1	1.0	1.0

Table 7 Citations of articles classified by ABS field of research

Area	No. of articles	Total citations	Average citations	Total citations per year
Ethics, CSR, management	91	12,272	134.8	1341.8
Non-ABS	308	4301	14.1	697.6
International business and area studies	29	2695	92.9	291.5
Marketing	77	2663	34.6	368.4
Innovation	30	1945	64.8	287.5
Sector studies	26	1070	41.2	218.7
Entrepreneurship and small business management	26	1058	40.7	195.0
Strategy	19	521	27.4	75.8
Information management	10	363	36.3	48.3
Operations and technology management	12	358	29.8	75.2
Social sciences	10	253	25.3	68.4
Organizational studies	6	206	34.3	44.3
Economics	6	119	19.8	15.4
Management development and education	6	104	17.3	20.1
Finance	3	85	28.3	15.4
Operations Research and management science	1	77	77.0	9.6
Public sector	1	35	35.0	5.8
Regional studies, planning and environment	2	21	10.5	4.8

The first decade of BoP research is mainly focused on Ethics-CSR-Management (40%), followed by Marketing (25.7%), Information Management, Management Development, and Education, Sector, and Strategy (5.7% each). Ethics-CSR-Management (23.9%) and Marketing (21.1%) continue to be the focus in the second half. However, the interest is seen to be growing in Innovation (9%), International Business (8.7%), Entrepreneurship and Small Business Management (8.1%), Sector Studies (7.5%), etc. A similar pattern is observed in the ABDC classification. The evolution in the focus of the researchers in this domain is visible in the changing distribution. The initial focus of BoP research was management (studies with a broader focus) and marketing (explaining the attractiveness and challenges of this market for firms). Most of these studies looked at BoP markets as a potential to be tapped by MNCs as the developed markets were witnessing sluggish growth (as proposed by C.K.Prahalad). Of course, researchers such as A. Karnani criticized making profits from a segment living in poverty. In the second half of the period considered, the focus shifted to studies on product and process innovation to serve BoP markets and newer businesses catering to this segment. More studies in Entrepreneurship and

Small Business Management and Sector Studies indicate a shift away from MNC focussed BoP research. The changed focus of research also indicates the increased activity in BoP markets by individuals and newer local/small-scale firms, unlike the MNC based business models that the initial research tried to capture. A similar evolution in the primary disciplinary focus of the first decade of BoP literature was reported by Kolk et al. (2014).

A citation analysis of the 665 articles (Tables 8 and 9) indicates that *Serving the world's poor, profitably*, the first journal publication on BoP, by C K Prahalad and A Hammond, is the most influential work. *Reinventing strategies for emerging markets: beyond the transnational model* by T London and S L Hart is the second most cited paper. While the top three most influential articles advocate for the BoP concept, the fourth paper by A Karnani criticizes the concept as initially proposed by C K Prahalad. Other articles have considerably lower citations than the first two most influential articles. It is exciting to see the articles proposing the concept and criticizing it among the most cited articles. The concept and the discussion around it continue to be relevant. The alternative views on the role of the BoP population (as a consumer or a co-producer) are also finding acceptance among the researchers.

Serving the world's poor, profitably by C K Prahalad and A Hammond and *Reinventing strategies for emerging markets: beyond the transnational model* by T London and S L Hart are the most influential work on BoP based on average citation, total citations divided by the age of the article. We notice that most influential articles are published in journals with a broader focus, such as business and management, and might serve as the starting point for researchers. At the same time, the skewed nature of citations, extremely high citations for a few articles, also indicates that the present research relies heavily on the conceptualization of a few initial authors and their papers.

There are 1162 unique authors across 665 articles selected for this study (Table 10), with the number of authors per article varying from 1 to 16. 73.7% of the articles are co-authored, with a majority having two or three authors. The extent of co-authorship, defined as the average number of authors in co-authored papers, is 2.8. Articles with two authors have the highest citation, followed by articles with three authors. Articles with more than six authors, although very few, have high average citations. The average number of authors in BoP papers has increased from 1 (2003) to 2.8 (2018), indicating increasingly more collaborations in the BoP research.

Siva et al. (1998) find that higher-quality journal articles typically have more authors. In this case, 84 percent of A*, 80 percent of A category articles are co-authored (Table 11). Whereas 71 and 72 percent of B and C category, respectively. Similarly, 88 percent of 4*, 78 percent of 4, and 83 percent of 3 category publications have multiple authors for ABS classification. The authors' average number is higher for articles belonging to category A*/A in ABDC and 4*/4 in ABS classification. The data indicate that co-authorships are likely to result in better quality research.

We also identify the most influential authors by the number of articles, citations, and citations per year (Table 12). Weighted articles are calculated by dividing the authorship equally between all the authors and summing up all such weighted

Table 8 Most influential articles by total citations

	Article title	Author	Journal title	Total citations	Year
1	Serving the world's poor, profitably	C K Prahalad and A Hammond	Harvard Business Review	2196	2002
2	Reinventing strategies for emerging markets: beyond the transnational model	T London and S L Hart	Journal of International Business Studies	1559	2004
3	The great leap: Driving innovation from the base of the pyramid	S L Hart and C M Christensen	MIT Sloan Management Review	883	2002
4	The mirage of marketing to the bottom of the pyramid: How the private sector can help alleviate poverty	A Karnani	California Management Review	836	2007
5	Profitable business models and market creation in the context of deep poverty: A strategic view	C Seelos and J Mair	Academy of Management Perspectives	744	2007
6	A Natural-Resource-Based View of the Firm: Fifteen Years After	S L Hart and G Dowell	Journal of Management	703	2011
7	Bottom of the pyramid as a source of breakthrough innovations	C K Prahalad	Journal of Product Innovation Management	488	2012
8	Strategic innovation at the base of the pyramid	J Anderson and C Markides	MIT Sloan Management Review	451	2007
9	Innovation and Growth: How Business Contributes to Society	D Ahlstrom	Academy of Management Perspectives	384	2010
10	Creating mutual value: Lessons learned from ventures serving base of the pyramid producers	T London, R Anupindi and S Sheth	Journal of Business Research	331	2010

Table 9 Most influential articles by total citations per year

	Article title	Author	Journal title	Citation per year	Year
1	Serving the world's poor, profitably	C K Prahalad A Hammond	Harvard Business Review	129.2	2002
2	Reinventing strategies for emerging markets: beyond the transnational model	T London and S L Hart	Journal of International Business Studies	103.9	2004
3	A Natural-Resource-Based View of the Firm: Fifteen Years After	S L Hart and G Dowell	Journal of Management	87.9	2011
4	Bottom of the pyramid as a source of breakthrough innovations	C K Prahalad	Journal of Product Innovation Management	69.7	2012
5	The mirage of marketing to the bottom of the pyramid: How the private sector can help alleviate poverty	A Karnani	California Management Review	69.7	2007
6	Profitable business models and market creation in the context of deep poverty: A strategic view	C Seelos and J Mair	Academy of Management Perspectives	62.0	2007
7	Reviewing a Decade of Research on the "Base/Bottom of the Pyramid" (BOP) Concept	A Kolk, M Rivera-Santos & C Rufin	Business and Society	58.2	2014
8	The great leap: Driving innovation from the base of the pyramid	S L Hart and C M Christensen	MIT Sloan Management Review	51.9	2002
9	Impact at the 'Bottom of the Pyramid': The role of social capital in capability development and community empowerment	S Ansari, K Munir and T Gregg	Journal of Management Studies	47.3	2012
10	Innovation and Growth: How Business Contributes to Society	D Ahlstrom	Academy of Management Perspectives	42.7	2010

Table 10 Authorship and citations

Authors	No. of articles	% of total articles (%)	Total citations	Average citation	Total citations per year
1	175	26.3	5913.0	33.8	770.2
2	236	35.4	13,782.0	58.4	1559.0
3	163	24.5	5577.0	34.2	982.6
4	66	9.9	2077.0	31.5	359.8
5	11	1.7	336.0	30.5	62.6
6+	15	2.3	428.0	47.6	20.5

articles. A similar approach is taken for citations. The total number of citations in a paper is divided by the number of its authors. Then, the citation for each author is summed up over all the articles published by them. A Karnani (8.0), one of the first critics of the BoP concept, has authored the highest number of weighted articles. A Karnani's first few articles on BoP criticized the concept as proposed by C K Prahalad. He used case studies to demonstrate that a capitalist approach of selling goods to the poor cannot *do good* to them. More recent works of Karnani suggest how the private and the public sectors can alleviate poverty. M Viswanathan (5.7) has the second-highest number of weighted articles on BoP. Viswanathan has published papers spanning the areas of sustainable consumption, sustainable market development, public policy, innovations, and research in the context of subsistence markets. T Chikweche (4.8) focusses on the marketing and strategic aspects of BoP markets and covers issues related to branding, franchising, research methods, consumer behaviour, customer relationship management, etc. Most of these top authors are from emerging economies, mainly India, but their current affiliations are in developed countries. Surprisingly, C K Prahalad does not feature in the top authors as most of his work appeared in books, working papers, or articles in magazines and are excluded as per the design of this study.

S L Hart and C K Prahalad's work seems to have the highest impact on other BoP works. A Karnani, T London, and A Hammond follow as the most influential authors. While authors from emerging economies have published more on BoP, authors in developed economies working on emerging economies have been

Table 11 Average number of authors

ABDC classification			ABS classification		
Category	% of papers co-authored	Average number of authors	Category	% of papers co-authored	Average number of authors
A*	84.1	2.50	4*	87.5	2.63
A	80.1	2.47	4	78.1	2.59
B	71.3	2.10	3	82.9	2.40
C	72.3	2.27	2	73.6	2.55
			1	76.3	2.28

Table 12 Most influential authors in BoP

Rank	Author	Weighted articles	Rank	Author	Weighted citations	Rank	Author	Weighted citations per year
1	A Karnani	8.0	1	S L Hart	1847.0	1	S L Hart	146.0
2	M Viswanathan	5.7	2	C K Prahalad	1586.0	2	C K Prahalad	134.3
3	T Chikweche	4.8	3	A Karnani	1458.0	3	A Karnani	127.0
4	R Singh	4.2	4	T London	1139.3	4	T London	92.0
5	S Gupta	4.2	5	A Hammond	1098.0	5	A Hammond	64.6
6	C Dolan	3.8	6	C M Christensen	441.5	6	M Rivera-Santos	49.0
7	R P Hill	3.5	7	M Viswanathan	404.6	7	M Viswanathan	48.8
8	S Goyal	3.4	8	J Mair	394.3	8	D Ahlstrom	44.0
9	S Chatterjee	3.3	9	D Ahlstrom	386.7	9	G Dowell	43.9
10	S L Hart	3.3	10	C Seelos	372.0	10	R Hahn	39.0

relatively more impactful. Higher impact of authors from developed countries can be attributed to the fact that these were the first set of studies/articles published on BoP and hence, remained at the core of the literature. The focus on BoP research started relatively early in the developed markets as the potential there was getting saturated with limited growth. Accordingly, we see much interest in it from scholars based in developed countries. In the last few years, the concept has started getting good traction among researchers in emerging or developing economies. As the field progresses further, more research from developing countries and closer collaboration between researchers from developed and developing countries is likely to be more impactful and take the domain forward. Studies such as Utami et al. (2021), Hussain et al. (2019) and Srivastava et al. (2020) are examples of some recent collaboration between scholars across different types of countries. As a result, we can see a greater role of scholars from developing countries/regions such as Asia and Africa in BoP research.

4.2 Thematic analysis

For the second part of the analysis, we selected the top 151 BoP articles based on total citation counts (Table 13). The selection of articles with the highest number of total citations is made to ensure that the most influential research articles are used to understand the dominant themes of BoP research. The article with the most citation number was ranked 1, followed by the article with the second-highest number of citations ranked as 2 and so on. Articles ranked 149, 150, and 151 have the same citations. Hence, 151 articles are retained for the analysis. These articles represent 22.7% of all the BoP articles published and 82.3% of the total citations received by all the BoP articles. This approach is in line with Fisch & Block (2018)'s suggestion of a balance of breadth and depth that can be achieved by including all the relevant studies (done in the earlier part of the analysis) but describing only the important ones in a structured way (done through thematic analysis).

There are very few recent articles in the top 151 as older articles are more likely to have higher citations, and age was not considered while shortlisting (Fig. 3). The entire text of the 151 articles is subjected to analysis in NVivo 12 software. The analysis was done in the form of word cloud, cluster analysis of themes, and identification of evolution of the themes in the BoP research.

Table 13 Details of the subset of articles for qualitative analysis

	No. of articles	% of total articles	Total citations	% of total citations	Highest citation count	Lowest citation count
Selected papers	151	22.7	23,120	82.3	2196	38
Entire dataset	665	77.3	28,102	100.0	2196	0

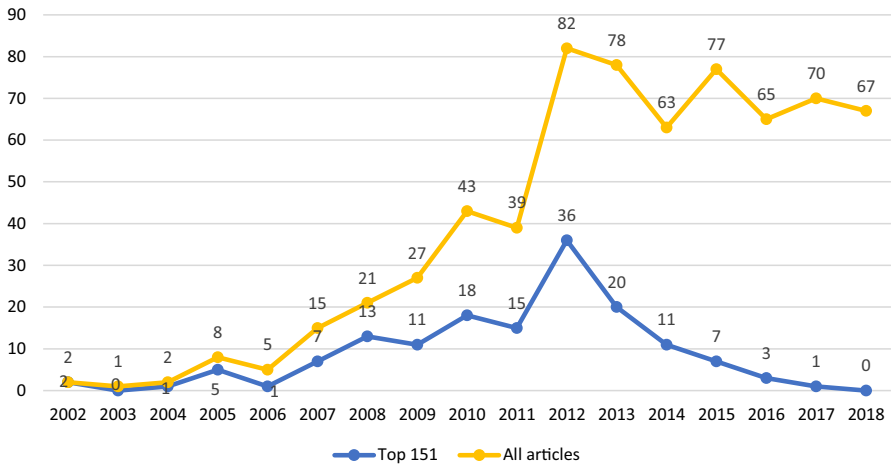


Fig. 3 Year-wise articles in the top 151

4.3 Word cloud

A word cloud of the 100 most frequent words is generated based on the full texts of the top 151 articles (Fig. 4). Synonymous words are grouped, and the minimum length of a word included in the word cloud is three. The most frequent words are



Fig. 4 Word cloud for top articles in BoP

bop, pyramid, income, entrepreneurs, innovation, market, development, poor, rural, growth, etc. They aptly capture the domain's nature, focusing on economically weak people, most of them residing in the rural areas, and innovative solutions for their growth primarily through entrepreneurial ventures. These keywords also indicate the topics that have attracted the most research in BoP. Words such as *information, technology, environmental, power, women, farmers*, and *networks* indicate the literature's focus on different aspects of the BoP markets and the stakeholders other than men. Since the 151 articles are not segregated by period, these keywords represent the overall focus of the BoP literature and not for a specific period.

4.4 Cluster analysis

Next, we use auto-coding on the entire text of all the top 151 articles to identify the themes, followed by cluster analysis to form groups of similar themes. The default number of clusters was 10, but the authors brought it down manually to 7 based on the themes' logical grouping. Cluster 1 is the only cluster with a single theme *poor* and represents the core BoP concept. *Social, economic, study*, and *groups* are the important themes in cluster 2. Cluster 3 consists of two sub-groups. The first one has local, community, institutions, and network themes – referring to the community and institutions' involvement in providing products and services to the BoP people. This enhances the acceptance of any initiatives specifically directed at them. The other sub-group included *strategy, business, model, activity, value*, and *resources*. These themes are related to businesses' approach towards the BoP markets. Cluster 4 focuses on *market, product, cost, consumer*, and *income* and represents the BoP consumers' offerings. Cluster 5 revolves around themes related to research and approach in BoP markets. Cluster 6 comprises two sub-themes – one about *economies* worldwide and the other related to the *system, process, technology*, and *innovation*. Cluster 7 is related to *companies, development, sustainability*, and *poverty* and includes broader and meaningful businesses while making strategies for BoP markets. The clustering solutions look very intuitive and reflect the themes along which the BoP literature has developed (Fig. 5).

4.5 Evolution of themes

The top 151 BoP papers are divided into 2002–2006, 2007–2010, 2011–2014, and 2015–2018. The periods have been divided to get broadly equal time duration in each period. After this, the themes during these periods are identified using the software on the complete text of the articles published during that period. The analysis identifies the frequency of the themes/keywords, themes new to every period, themes shared across the four periods, and the least common themes in the BoP research. The most common themes which appear across all the four periods are *business, development, economic, market, model, products, resources, strategy, sustainable, system, technology* (Table 14). Themes such as *community, consumer, poverty, management, companies*, and *corporates* appear in 3 out of 4 periods. Themes appearing in only two periods are– *cost, income, process, social*, and *network*.

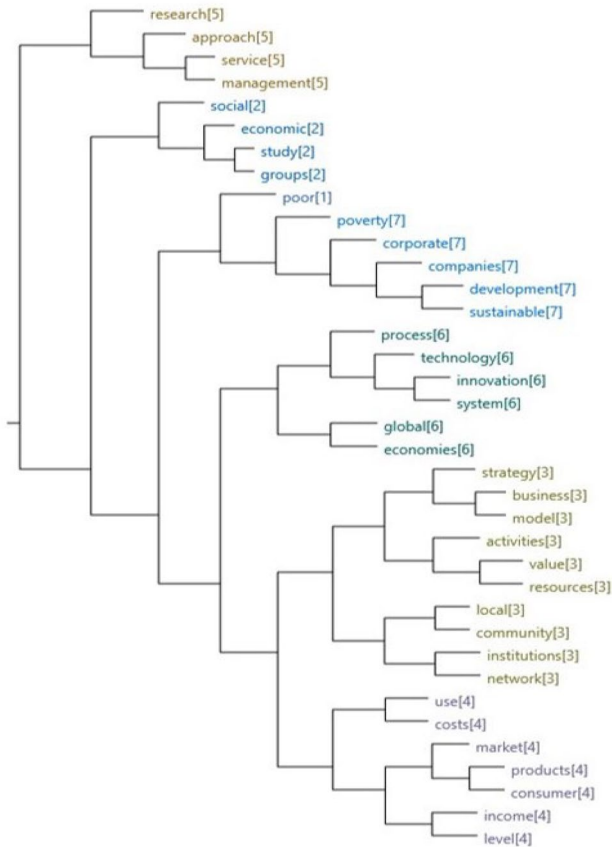


Fig. 5 Clusters of themes from the top 151 articles

Table 14 BoP themes and their occurrences

Themes	No. of periods in which the theme appears
Business, development, economic, market, model, products, resources, strategy, sustainable, system, technology	4
Community, consumer, innovation, level, poor, poverty, research, service, study, value, management, companies, corporate	3
Activities, approach, literature, projects, theory, economies, opportunities, cost, global, income, institutional, local, process, social, network	2
Capital, change, countries, design, effects, entrepreneurship, environment, formal, impact, informal, institutions, issues, limited, operations, organizations, perspective, responsibility, skills, solutions, specific, supply, voids, work, case, group, key, knowledge, mobile, relations, use, water, price, cluster, entrepreneurs, infrastructure, partners, potential	1

Generic themes are observed across several periods, while those that appear once are more specific—*entrepreneurship, environment, skills, operations, mobile, water, infrastructure, and partners*. Some of these themes were explored in one period and not done later. Other themes appear in the most recent period and are yet to be studied in depth. Either way, it indicates a potential gap in the research, which can be further explored.

In the first few years of BoP (2002–2006), the major themes emerging are *market, business, development, product, strategies, and opportunities* (Table 15). This is similar to BoP 1.0, which deals with the development of markets at the BoP by MNCs. Studies such as Prahalad and Hammond (2002), Hart and Christensen (2002), London and Hart (2004) formed the basis of BoP literature and looked at the BoP markets as potential sources of growth for MNCs. This period had a limited number of publications, some of which were case studies (Ahmad et al. 2004; Prasad and Ganvir 2005). The important themes appearing for the first time in 2007–2010 include *social, local, services, and innovation* along with *value, costs, price, poverty, and poor*. If we look at the most cited articles published during 2007–2008, they continued to describe the characteristics of BoP markets (Pitta et al. 2008; Akula 2008) along with the strategies required to operate in these markets (Seelos and Mair 2007; Anderson and Markides 2007). Some studies focus on consumer behaviour (Guesalaga and Marshall 2008; Subrahmanyam and Gomez-Arias 2008), an additional dimension explored earlier. Value creation in BoP markets turned out to be one of the dominant themes in 2009–2010 (London et al. 2010; Sánchez and Ricart 2010). Interestingly, this period also witnessed research raising ethical questions on *selling to the poor* and advocated integrating social goods into BoP business models (Hahn 2009; Davidson 2009; Garrette and Karnani 2010; Viswanathan et al. 2009, etc.) During 2011–2014, the most interesting new themes were *mobile and water*. During this time, mobiles gained widespread acceptance in emerging economies, with several BoP business models centered around them. The two periods, 2007–2010 and 2011–2014, broadly overlap with BoP 2.0. The BoP literature in these periods advocated the inclusion of social aspects and local entities in the BoP business models and the need for innovation. Some of the most cited articles published during 2011–2014 are centered around capability development (Ansari

Table 15 Themes new to each period

Period	Themes new to the period
2002–2006	Market, business, development, product, model, strategies, system, companies, economy, opportunities, partners, technology, economic, sustainable, corporate, cluster, entrepreneurs, management, potential, resources, network, infrastructure
2007–2010	Social, local, consumer, services, research, value, innovation, income, process, global, community, poverty, level, costs, study, price, poor
2011–2014	Use, approach, group, knowledge, activities, mobile, literature, key, case, relations, theory, water
2015–2018	Institutions, supply, capital, effects, entrepreneurship, impact, organizations, solutions, change, informal, environment, issues, skills, design, limited, operations, perspective, responsibility, formal, voids, specific, work, countries

et al. 2012), inclusive business (Halme et al. 2012), inclusive growth (Hall et al. 2012), collaborations and partnerships (Murphy et al. 2012; Chaurey et al. 2012). These ideas are central to BoP 2.0, which considers business co-venturing while addressing BoP markets. The most recent articles (2015–2018) coincide with BoP 3.0. They have focussed on themes such as *institutions*, *impact*, and *environment*, similar to the BoP 3.0's focus on sustainable development approach to poverty alleviation. Studies such as Khalid et al. (2015), Pansera and Sarkar (2016), Brix-Asala et al. (2016) are some of the BoP works on sustainability. Studies also focus on corporate social entrepreneurship/responsibility (to reduce poverty), social enterprises, innovation (frugal), and healthcare. The overall trend of the themes indicates a shift from strategic level thinking in literature to more specific research related to operationalization and shifts to associated domains such as environment and institutions.

5 Conclusion and implications

The paper identifies 665 journal articles on BoP using a systematic literature review process and conducts a bibliometric and thematic analysis. The analysis shows that the quantum of BoP literature has increased ten folds in the second decade of BoP lifetime compared to the first half. However, the research done during the initial few years (2002–2004) continues to be the most impactful work and a reference for the later research. BoP research has found outlets in practitioner and, more recently, in academic journals. The articles published in higher-ranked journals have more citations, hence the impact. In addition to management and marketing-focused journals, recent focus has shifted towards publication in journals on innovation, entrepreneurship, small business, international business, and sector studies indicating the interest generated across different fields. Co-authorship patterns indicate that there seems to be merit in collaborating where authors bring in their different skill sets, leading to a better-quality output. Many authors originally from developing countries have contributed to the BoP. However, the most influential works are authored by researchers from developed countries. The research in these 151 articles has developed along different streams: poverty; community and network, strategy and business; consumer; technology and innovation; and sustainability and development. There has been a gradual shift in focus from themes such as business, market, development, and strategies to more specific and diverse themes, such as institutions, entrepreneurship, operations, and environment. Overall, it looks like that the approach has been macro so far. The micro details of BoP are yet to be studied. One focus area that did not stand out during our analysis was consumer behaviour at BoP. People at the bottom of the pyramid behave differently, at times making choices that might appear to be irrational (Duflo and Banerjee 2011). So there is a need to explore the various facets of the same. Some recent studies address consumption and purchase decisions and consumer motivations/ perception of the BoP segment (Mukherjee et al. 2020; Kumar and Kumra 2021; Kumra et al. 2021; Panda et al. 2021). We also feel that the existing business models at BoP need to be studied in detail to arrive at a framework that can be followed by organizations interested in these markets.

Overall, this paper identifies the landscape and the BoP literature trends through citation and thematic analysis. It points out that the domain can attract researchers' greater interest and move into new domains. This paper summarizes the entire BoP literature to date, and this data can help provide direction for future research.

6 Limitations and future research

This study does suffer from a few limitations. Research published in outlets other than journals has been excluded from the scope of this study. Additionally, a few journal articles might not have appeared in the search results because the authors did not use the exact search terms in their title, abstract, and keywords. As a result, studies focusing on the economically weaker section or business model catering to this section where BoP was not mentioned explicitly might have been left out. *Subsistence marketplaces*, *inclusive businesses*, etc., are related terminologies that focus on consumers with limited spending potential. Such studies are excluded in this paper unless the search keywords appeared in the title, abstract, or the main text.

In future, a better understanding of the literature can be achieved by doing a content analysis of all the BoP articles. One can also see the authors' network within this domain to understand the core around which the entire BoP literature has developed and those who have made significant contributions. Several other aspects, such as co-word analysis, co-author analysis, etc., can also be explored. More importantly, this paper covers literature till 2018. The last couple of years have seen a wide range of topics being covered in BoP research. Recent articles address topics such as hybrid organizations, social innovations, mobile technology/payment adoption, sustainable supply chain, consumer behaviour, financial inclusion, and more recently, the impact of COVID-19. There is also an increase in the number of studies in the African context. Future research can see the development of literature and the business models across continents and compare them.

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Declarations

Conflict of interest Authors declare no conflict of interest.

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