VISUALIZING THE SCIENTIFIC LANDSCAPES ON "GIG ECONOMY": A BIBLIOMETRIC ANALYSIS

Sheena Pitafi, School of Management, Huazhong University of Science and Technology, Wuhan China. Email: sheenapitafi@gmail.com

Fazeelat Masood, Bahria Business School, Bahria University, Karachi, Pakistan. Email: fazeelatmasood@gmail.com

Adnan Pitafi, Mehran University, Jamshoro, Pakistan. Email: adnan.pitafi@faculty.muet.edu.pk

Erum Masood, Bahria Business School, Bahria University, Karachi, Pakistan. Email: emasood81@gmail.com

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This study aims to use the SCOPUS database to investigate the literary contributions of prior researchers on the "Gig Workers" till January 2025. To serve this purpose, this study uses the SCOPUS database to identify (i) the top research areas (ii) leading social research contexts (countries) and research languages in gig economy studies (iii) the starting years for gig economy research (iv) the leading publishing platforms (journals) on gig economy, and (v) the key contributors (researchers/ authors) in the field. This study comprises of 1,484 articles extracted from the SCOPUS database using different keyword combinations. The term 'gig economy' was coined in 2009 with an apparent increase in gig-related publications since 2024. English is the most common linguistic medium for research publications on the subject with most of the research originating from developed economies. Also, Oxford University ranks the charts of publications on gig-related concepts. This analysis guides researchers not only familiarizing with the gig economy, the key contributors in this field, and the relevant journals for published research but also helps develop a theoretical framework.

Keywords: Gig economy; gig worker; bibliometric analysis; SCOPUS database

1. Introduction

The novel idea of "Gig workers" has recently gained popularity and attention (Watson et al., 2021). A gig worker is an individual who works on a short-term or project-based task, usually for several employers at once

(Friedman, 2014). They are mostly known as freelancers, working on online platforms or task-based workers (Friedman, 2014; Lehdonvirta, 2018). Unlike traditional employees, gig workers lack the perks, security, and fringe benefits that full-time employees get (Dunn, 2020; Graham et al., 2017). However, online platforms are now used by companies of all sizes, from start-ups to established organizations to compensate gig workers worldwide for work that can be done remotely (Graham et al., 2017; Kossek et al.). These gig workers perform tasks that were previously completed by employees or contracted through staffing agencies and outsourcing companies.

True to note, 'gig worker' is a hot potato in the research arena; however, research on the gig workers' status remains pretty scant. Furthermore, the quality of research on gig workers is yet to be determined. Thus, this restricts research on gig workers and supports the necessity of the current research. This study presents a bibliometric analysis built on the "SCOPUS" database to identify the research avenues with the highest research output, the research languages, and social research contexts (countries), and the keywords that drive the studies relevant to gig work.

1.1 The Concept of Gig workers

Gig workers known as independent contractors use various platforms that include online digital platforms and apps without long-term employment commitments (Cropanzano et al., 2023). The earlier studies referred to gig workers as freelancers or crowd-source employees (Schroeder et al., 2021). In a present-day work environment, technology has become increasingly important in facilitating different facets of work in the modern era of digital transformation (Wibowo et al., 2022). Thus, the development of online and digital tools has provided gig workers with unprecedented opportunities to engage in flexible and independent employment (Schroeder et al., 2021). However, prior studies have suggested how gigs integrate into the workplace in different contexts (Chen et al., 2023; Crayne & Brawley Newlin, 2023; Davidson et al., 2023) that included environmental characteristics and job autonomy. Crayne and Brawley Newlin (2023), observed that the performance of gig workers varies depending on whether they are experiencing severe financial strain or are extremely satisfied with their jobs. Similarly, Davidson et al. (2023) have deliberated on the essence of gig workers as centered on the transient, task-based work made possible by software and environment, all pointing to the performance of gig jobs. These platforms were approached, highlighted, and came into notice properly during the COVID-19 disaster.

2. Method

Bibliometric analysis is a process of using statistical techniques to identify trends within a discipline, create publication profiles on a particular scientific research area, and ascertain qualitative and quantitative changes as well.

Additionally, experts looking to assess scientific activity can find valuable information from this kind of analysis. Consequently, a bibliometric analysis serves as a roadmap for the status of the gig economy and related research (Rey-Martí et al., 2016). Thus, the SCOPUS database provides scientific documentation across all relevant disciplines (Burnham, 2006; Guz & Rushchitsky, 2009). The database provides information on the output, dissemination, collaboration, and impact of scientific research, which makes bibliometric analysis possible (Burnham, 2006). This kind of analysis represents a methodological advancement in comparison to customary literature reviews (Rey-Martí et al., 2016).

3. Data Analysis

In this study, the SCOPUS database's analysis primarily focuses on "Gig Workers" research by analyzing all gig worker-related published articles found in SCOPUS. The search output extracted 1,484 published items including research reviews, book chapters, research articles, abstracts, book reviews, and editorial material. This study uses the following bibliometric indicators:

- Language of the articles published on gig workers
- Knowledge domains and disciplines in which earlier researchers have studied the concept of gig workers
- Changes in the amount of published research articles on gig workers throughout the years till January 2025.
- Most commonly studied geographic regions and social research contexts i.e., countries by prior researchers on gig workers
- Keywords used by different authors in published articles on gig workers
- Most popular journals publishing research on gig workers
- Key research contributors and authors publishing research on gig workers

3.1. Languages used in articles published on gig workers

The journal citation reports (JCR) contain multi-language platforms including journals that also publish research in non-English languages (Rey-Martí et al., 2016; Van Nunen et al., 2018). Table 1 represents the number of publications on gig workers in different languages, according to the SCOPUS database. Since English is one of the most widely used linguistic mediums of communication, research output (1,452) enlists it as the most common research language while Spanish (16) is the second most common research language. The majority of research publication platforms use English as a common language of publishing due to its acceptability and usage by the wider academic community. Surprisingly, Turkish, Polish, Norwegian,

German, Croatian, and Chinese are the languages in which a minimum number of research articles are published.

3.2. Number of publications according to different disciplines

The gig economy also referred to as gig work, is a rapidly expanding trend with important ramifications for business management and social sciences. The social sciences have examined gig work's effects on worker's economic and social well-being, labor market disparities, and the evolution of traditional work structures (Lobel, 2017). Similarly, from a business management perspective, gig work puts traditional human resource (HR) procedures, requiring new paradigms for workforce management, organizational structure, and performance management (De Stefano, 2016; Lobel, 2017). Data presented in **Table 2** shows the number of published papers in descending order of different disciplines. It represents the articles published in different disciplines extracted from the database of SCOPUS. The SCOPUS contains (812) articles in social sciences, (596) in business, management, and accounting, and (330) in economics, finance, econometrics, and other disciplines. These numbers show the difference between the different disciplines (Rey-Martí et al., 2016). These findings imply that gig workers are a highly relevant topic in the disciplines of business & management, social sciences, accounting & finance, and economics & econometrics. This concept is least studied in the disciplines of agriculture & biological sciences, material science, neurosciences, and astronomy & physics. Supportively, for better understanding **Fig. 1** shows the percentage according to disciplines clearly by a pie chart representation.

Table 1: *Number of Publications According to Different Languages*

Ranking	Languages	Number of Publications
1	English	1,452
2	Spanish	16
3	Italian	08
4	Portuguese	05
5	Russian	03
6	Turkish	01
7	Polish	01
8	Norwegian	01
9	German	01
10	Croatian	01
11	Chinese	01

Source: SCOPUS Database, January, 2025

Table 2: *Number of Publications According to Different Disciplines*

Ranking	Disciplines	Number of Publications
1	Social Sciences	812
2	Business, management, and Accounting	596
3	Economics, Econometrics and Finance	330
4	Computer Science	267
5	Arts and Humanities	120
6	Psychology	110
7	Decision Sciences	105
8	Engineering	085
9	Medicine	083
10	Environmental Science	062
11	Mathematics	033
12	Earth and Planetary Sciences	020
13	Multidisciplinary	013
14	Nursing	010
15	Energy	008
16	Health Professions	005
17	Biochemistry, Genetics and Molecular Biology	004
18	Agriculture and Biological Sciences	004
19	Neurosciences	003
20	Physics and Astronomy	001
21	Material Science	001

Source: SCOPUS Database, January, 2025

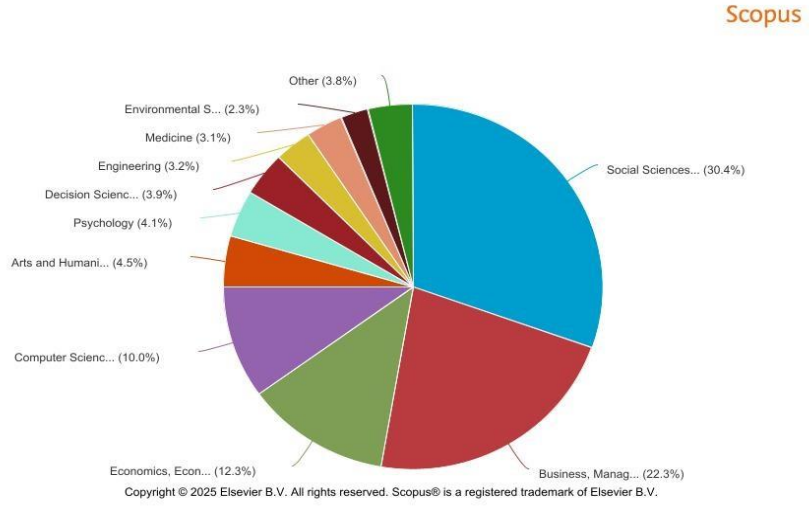

Fig. 1. Number of Publications by Disciplines. Graph Source SCOPUS

3.3. Year of publications

When searching "Gig Economy" in the SCOPUS database, results showed that the early gig economy articles were written in 1982 and 1986. After a complete analysis, it shows that these articles are not directly related to the concept of "gig workers" but deliver relevance with temporary workers and switches in positions, they show relevance to the concept. According to the SCOPUS database, the understanding of the concept of "gig workers" came in an article named *As Design Goes Global, Tools Get More Critical* in 2009 by *Mannion, Patrick*. However, annual publication output (i.e., number of published articles per year) on gig workers before 2018 was less than 50. Table 3 shows the number of articles published till January 2025. The available data show increasing interest in this area and since 2017 the number of publications increased gradually. From 2018 to 2019 the number of publications doubled. In 2021 thrice the number increased as compared to 2018. In the years 2022 and 2023, the table shows (246-273) published articles. And the largest number of publications so far are published in 2024 (381). Day by day with time the interest in this concept is increasing. Connectively, a chart has been given below Fig. **2** showing the increase of interest by the increasing number of publications during 2020 and the maximum number of publications around 2023-2024.

Table 3: *The Number of Publications Per Year*

Ranking	Year	Number of Publications
1	2025	24
2	2024	381
3	2023	273
4	2022	246
5	2021	194
6	2020	140
7	2019	132
8	2018	51
9	2017	29
10	2016	7
11	2015	1
12	2014	1
13	2013	1
14	2012	1
15	2009	1
16	1986	1
17	1982	1

Source: SCOPUS Database, January, 2025

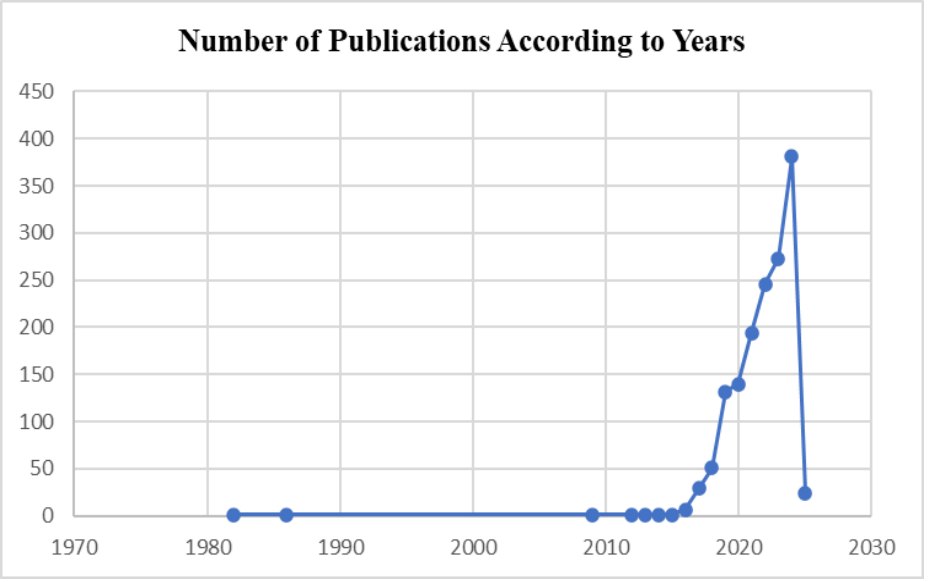

Fig. 2. Number of Publications Increasing since 2019

3.4. Countries that have published most maximum number of articles

Here given below is table 4 which represents the number of publications according to the top 20 countries, the data is presented in descending order with the lowest number of publications at the bottom. Most articles are published in among all countries The United States outnumbers all other countries showing a maximum number of published works, With the amount of (424). The United Kingdom ranks second with several (222) publications. The figure goes to level three is around (100) in countries like Australia, India, China, and Canada. The remaining countries show a number of less than (100). This analysis does not include all other countries within the concept of the "gig economy" but rather shows fewer than 100 publications; hence not mentioned. The observed variation in the number of published articles occurs because most of the journals originate from the United States and the United Kingdom (Faruk et al., 2021; Rey-Martí et al., 2016). Connectively figure 1 shows the visual image of the countries that have published the articles.

Table 4*: Number of Publications According to the Top 20 Countries*

Ranking	Countries	Number of Articles Published
1	United States	424
2	United Kingdom	222
3	Australia	119
4	India	108
5	China	093
6	Canada	093
7	Germany	072
8	Netherlands	057
9	Italy	052
10	Spain	037
11	France	036
12	Ireland	033
13	Hongkong	033
14	South Africa	029
15	Norway	029
16	Malaysia	029
17	Sweden	028
18	Indonesia	027
19	Switzerland	026
20	Denmark	024

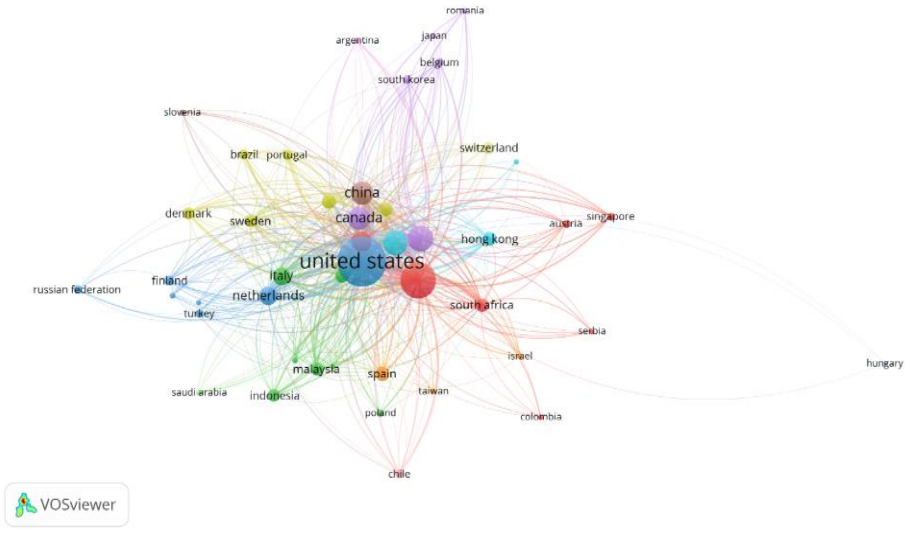

Fig. 3. Countries Citation Map

3.5. Top 15 Universities that have published most of the articles on the "Gig Economy"

As far as Universities are concerned, the data show that Oxford University outnumbers even the Universities of the USA, in published work on the subject of the 'Gig Economy'. The affiliations given in table 5 reveal that countries the United Kingdom and Ireland contribute the highest number of publications with a total of (108) articles approximately. The US universities stand at second number with (76) articles and Australia and Netherlands are placed at number 3 and 4, respectively table 5.

Table 5*: Top 15 Universities and the Number of Publications (Affiliations)*

Ranking	Affiliation	Number of Publications
1	University of Oxford	41
2	Oxford Social Sciences Division	29
3	University of Michigan, Ann Arbor	28
4	University of Toronto	23
5	The University of North Caroline at Chapel Hill	23
6	The University of Sydney	21
7	University of Melbourne	19
8	Handelshogskolan I	15
9	Universiteit van Amsterdam	14
10	The University of Manchester	14
11	University of Washington	13
12	Universitas Indonesia	13
13	The City University of New York	12
14	University College London	12
15	University College Cork	12

Source: SCOPUS Database, January, 2025

3.6. Sources that publish most maximum articles relevant to Gig Economy

Knowing which sources publish research on the gig economy is particularly crucial when choosing which ones to read for a literature review. Table **6** represents the sources that have published most of the articles on the gig economy. Thus, the journal impact factor is based on data from the Journal Citation Reports (JCR) by the Science Citation Index (SCI) (Rey-Martí et al., 2016). JCR gathers and disseminates data regarding scientific research in various fields and specializations based on both citations received and citations made (Kozar & Bolimowski, 2024; Rey-Martí et al., 2016). Consequently, the impact factor gives researchers an unbiased assessment of

the relative significance of various journals within a particular category (Leydesdorff et al., 2010).

Table 6 shows that the Source Names *New Technology Work and Employment* has published (33) articles on the gig economy as compared to the remaining sources. *Proceedings of the ACM on Human-Computer Interaction, Conference on Human Factors in Computing Systems, and ACM International Conference Proceedings Series* ranked 2,3 and 4th. And the remaining sources have less than (20) articles published till January 2025.

The significance of journals can also be assessed by comparing them to other journals based on the quartile to which they belong. The least relevant journals are those in the fourth quartile, and the most relevant journals are those in the first quartile. To determine a journal's quartile, the total number of journals is divided by four, creating four groups. For example, if there are 100 journals, the first 25 would fall into the 1st quartile, which includes journals with the highest impact factors. The next 25 (journals 26-50) belong to the 2nd quartile, followed by journals 51-75 in the 3rd quartile, and journals 76-100 in the 4th quartile. The remaining last would belong to the lowest impact factor (Leydesdorff et al., 2010; Rey-Martí et al., 2016).

Table 6*: Sources that have Published Research on "Gig Economy"*

Ranking	Sources	Number of Publications
1	New Technology Work and Employment	33
2	Proceedings of the ACM on Human-Computer Interaction	28
3	Conference on Human Factors in Computing Systems Proceeding	21
4	ACM International Conference Proceedings Series	20
5	Work Employment and Society	19
6	Journal of Industrial Relations	17
7	Environment And Planning A	15
8	Critical Sociology	15
9	New Media and Society	14
10	International Journal of Human Resource Mgt.	13
11	Sustainability in the Gig Economy Perspectives Challenges and Opportunities in Industry	12
12	Proceedings of the Annual Hawaii International Conferences on Systems Sciences	12
13	European Labor Law Journal	12
14	Proceedings of the ACM Conference on Computer-Supported Cooperative Work CSCW	11

15	Journal of Management Psychology	11
16	Economic And Labor Relations Review	11
17	International Journal of Comparative Labor Law and Industrial Relations	9
18	IFIP Advances in Information and Communication Technology	9
19	Work Organizations Labor and Globalization	8
20	Safety Science	8

Source: SCOPUS Database, January, 2025

3.7. Authors who have published on "Gig Economy"

When conducting a bibliometric analysis of research in a particular field, it can be challenging to measure research performance at a micro level (Bornmann & Daniel, 2007). Two of the main challenges include (i) researchers must obtain a high research output and (ii) research productivity does not need to be correlated with the publication quantity and impact of citations (Glänzel, 2006). However, due to resource constraints, scientific performance measurement has become indispensable for systematic comparison and evaluation, including the provision of data for decisions related to research authorship or grant/funding (Ball, 2005; Rey-Martí et al., 2016). Furthermore, the quality of an article in the bibliometric analysis is primarily assessed via the number of citations an article receives and the number of studies that it cites (Duque Oliva et al., 2006; Rey-Martí et al., 2016).

However, the articles with the most citations are the most popular ones. Therefore, the authors who are regarded as significant in the field of "Gig Economy" are listed in table 7. According to the SCOPUS database, the most prolific gig economy author is "Mark Graham" who has published (20) articles and received (2783) citations. *Graham, Mark* is a professor in internet geography and is associated with the University of Oxford, UK. Wood et al. (2019), in their paper *Good Gig, Bad Gig: autonomy and Algorithmic Control* published in the Global Gig Economy, define the gig economy as a work where e-labor (online labor) mediates remote provision of a variety of digital services. Second in the list, Villi Lehdonvirta with most of the citations but fewer publications around (10) have (2533) citations. Furthermore, Tom Barratt, Celab Good, and Alex Veen have a similar number of publications and citations around 7/8 publications and 807 citations.

Table 7*: Authors Who have Published on "Gig Economy"*

Ranking	Authors	Publications	Citations
1	Graham, Mark	20	2783
2	Gandhi,arfive	11	062
3	Sucahyo,yudho giri	10	059
4	Barratt,tom	07	807
5	Goods,celab	07	807
6	Veen,alex	08	807
7	Ruldeviyani,yova	06	049
8	Mcdonnell,Anthony	07	133
9	Carbey,ronan	06	129
10	Duggan,james	07	089
11	Heeks,Richard	06	114
12	Lehdonvirta,villi	10	2533
13	Anwar,Mohammad amir	10	511
14	Jarrahi,Mohammad Hossein	06	748
15	Sutherland,will	06	748
16	Van bella, jean-paul	07	084
17	Wood,alex j.	06	401
18	Kowalski,ken cai	06	101
19	Ravenella, Alexandrea j.	11	349
20	Woodcock,Jamie	07	150
21	Newlands,gemma	06	428
22	Van doorn,niels	07	369
23	Meijerink,jeron	07	301
24	Bucher,eliane	08	170
25	Cameron,lindsey d.	06	268
26	Maffie,Michael David	07	212

Source: SCOPUS Database, January, 2025

3.8. Keywords used on "Gig Economy"

This study classifies studies by using 5299 keyword combinations. As can be seen in Fig 2, (372) words are refereed as the keywords that were sampled out at least (5) times. The weight of each word is represented by the nodes' size on the map; their relationship strength is indicated by the nearness of words and lines. The starting two keywords in the co-occurrence and rank data provide the anticipated outcomes. The link to gig workers and platform work appears highly ranked, taken such as closely with words like "platform economy". The keywords labor market, algorithm control, and contingent work as relevant study works also prove the relevance. Hence, it should be noted that this aligns with the found intellectual framework, the most pertinent authors and references cited regarding HR practices. As well as authors, languages, and others that are significant. Also, industry-specific keywords

from every article indicate that these pieces of literature are focused on labor-intensive businesses.

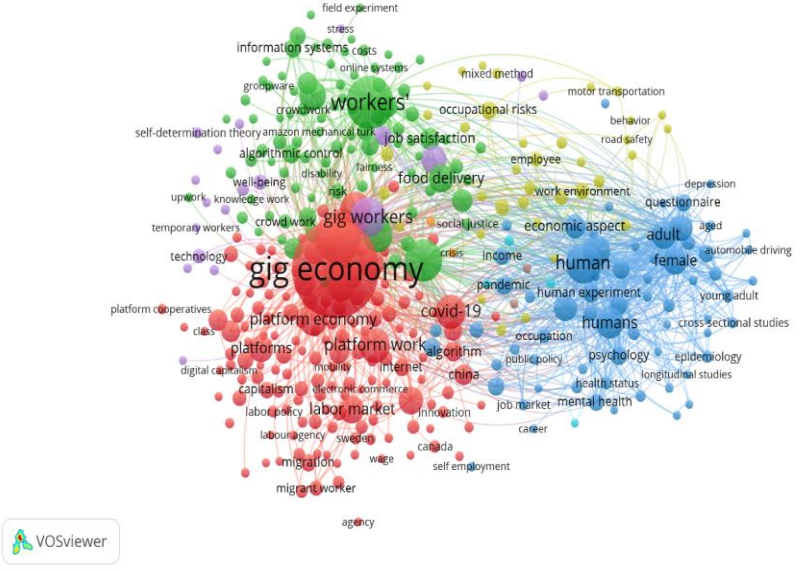

Fig. 4. Co-Occurrence of Keywords Map

4. Conclusion

This study provides a thorough review of the emergence and future research avenues on the gig economy across the social science discipline by using bibliometric research tools. In this study, most of the research results are found to be built on the perception of the academic community. However, quantitative results drawn from the analysis of the research articles, key contributors in the field, and research publishers i.e., journals showed some interesting differences. These findings provide guidelines for future researchers in the area of the gig economy by highlighting the leading journals and eminent research contributors in the field. In this study, the bibliometric analysis of 1,484 gig economy research articles collected from the SCOPUS database extends to January 2025.

The preferred and most commonly used language for publication is English (1,452), the discipline with the most published articles is social sciences with a number reaching 812 articles. The word “Gig Economy” came into existence in academia in 2009 whereas, most of the publications were published in the year 2024 with a number of 381 articles. An interesting finding of the presented data reveals that a maximum number of publications

come from developed countries and the least number of articles from developing countries. Although data is not presented here there is a higher number of gig workers in the developing world. Research being the luxury of developed countries, the researchers from developing countries study in the developed world contributing published articles accordingly. The present study recommends that the gig economy has a very wide scope and requires extensive work in the field in developing countries. The contribution of the gig economy to GDP in developing countries may be much higher than expectations: a fact that invites more researchers in the field to explore.

By concluding after analysis, it has been found that the majority of articles contributed in the said field of Gig workers have been written by Professor Graham, Mark. The present study provides a guideline to researchers in the area of the "Gig economy", although future studies can be revealed from the "Web of Science", as this study is limited to the database of SCOPUS.

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