

GIG ECONOMY AS A RESEARCH AGENDA: A BIBLIOMETRIC ANALYSIS

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Abstract

Mobile devices, apps, and online platforms have all contributed to the rise of the "Gig economy," in which companies (job providers) can use the market to find and recruit workers on a project-by-project basis (job seeker).

Because of the gig economy, independent workers now have more options for finding contract work and other types of temporary employment than they did in the past. This paper presents a bibliometric analysis of the global viewpoint on the gig economy in a systematic assessment of the literature. For this study, we will look at published papers about the gig economy. Between 2014 and 2022, 2297 documents containing the keyword "gig economy" were extracted from Google Scholar, Scopus, and Web of Science. Only 686 papers were chosen for the bibliometrics study after applying specified criteria. Research on the gig economy was analysed using bibliometric indicators and a review of the selected papers. The results were obtained using Bibliometrics, Rstudio software tool for bibliometric and co-citation analysis. Co-occurrence of terms was also analysed using VOSviewer. Research trends, top authors and nations, and most referenced publications and keywords are highlighted in the results.

Keywords: Gig Economy, Digital Platforms, Bibliometric Analysis, Rstudio,

1. Introduction

As the world moves towards a digital infrastructure, more and more products and services can be delivered digitally or in a mixed format (Osburg 2017). The development of ICT (information and communication technology) and the advent of the internet have also brought in new economic models, such as the "access economy," "platform economy," and "sharing economy" (Scuotto et al. 2021). New patterns in the platform economy, such as the growth of the freelance economy, are picking up speed. However, a consensus on how to describe the "work economy" has yet to be reached. The "gig economy," despite being a term that has been in use for a decade, is still in its youth. Airbnb is a well-known "platform firm" due to its rapid growth alongside the "gig economy." Partnerships with other businesses like Uber, Lyft, TaskRabbit, Airbnb, and Upwork are a major factor in this success (Vallas and Schor 2020). Some people argue that "gig labour" is nothing new because jazz performers started doing it in 1915. (Friedman 2014). Jobs on the side have been around for a while, but the rise of new technologies has given them a whole new degree of professionalism and flexibility.

A few years ago, "gig economy" was a synonym for temporary or independent employment (Healy et al. 2017). The concept of the "gig economy" extends far beyond transportation and food delivery to include any job that can be done remotely or digitally. Online teamwork is, in a nutshell, when bosses and workers work together to get stuff done (Bunders et al. 2022). The freelance economy has gotten off to a roaring start thanks to advances in blockchain technology and information and communication technology (ICT) as well as human preparedness (Malik et al. 2021). The spread of COVID-19 necessitated that everyone labour from home, which stoked the fires of the gig economy. During COVID-19, the number of routine tasks and full-time employment benefitted the contract economy (Umar et al. 2021).

2. Literature Review

The gig economy has been the subject of a growing body of research across various disciplines. In economics, for example, a number of studies have examined the labor market implications of the gig economy. In their seminal paper, Katz and Krueger (2016) found that the percentage of workers in alternative work arrangements (which includes gig workers) had remained relatively constant over the past decade. However, they also found that gig workers were more likely to be older and better educated than traditional workers. In addition, they found that gig workers reported lower levels of job satisfaction and were less likely to have access to benefits such as health insurance. In sociology, research on the gig economy has focused on issues such as the impact of gig work on workers' identities and the role of gig work in the broader labour market. For example, Wood et al. (2019) conducted a qualitative study of gig workers in the UK and found that gig work often played a central role in workers' identities, but that workers also faced many challenges, such as uncertain income and lack of social protections.

In management, research on the gig economy has examined issues such as the management of gig workers and the use of gig work by organisations. For example, Cappelli and Keller (2014) argue that organisations need to develop new management practices to effectively manage gig workers, who may have different needs and preferences than traditional employees. In addition to these disciplinary perspectives, a number of studies have also examined the impact of the gig economy on specific industries, such as transportation and hospitality. For example, Belman and Heywood (2019) examined the impact of ride-sharing services such as Uber on the taxi industry, and found that while Uber had reduced taxi employment, it had also increased overall employment in the transportation sector.

The rise of the gig economy can be attributed to both societal changes towards a more flexible and independent work style and technical developments. The current pupil population has also thrown a wrench into the system. The majority of gig employees (55%) are financially dependent on their job, especially those between the ages of 18 and 34. However, many people have grown acclimated to and even prefer it when they can do their jobs from the comfort of their own homes. As more people seek and fail to obtain full-time employment, more people will participate in the freelance economy. Freelancers are a preferred employment option for businesses and organisations of all sizes. According to a study conducted by Zippia, the vast majority (97%) of gig employees report being happy than their full-time counterparts. Seventy-five percent of the freelance economy is concentrated in the computer-related industries of software development and web design. The overall growth of the gig economy over the past few decades has been 15 times higher than the growth of the conventional labour market (Kolmar 2022). As of 2018, more than 70 million individuals around the globe were using a gig economy app, a figure that is growing by 26% yearly (Heeks 2017).

There is no doubt that temporary contracts are gradually substituting permanent ones in today's labour market. There is a clear correlation between the rise of "gig labour," or independent contract workers, and the tax structure. Sometimes it's hard to determine if someone is working for themselves or for a company.. Gig work shifts the risk of economic fluctuations onto employees while simultaneously increasing wage and salary flexibility (Friedman 2014).

Based on data collected from 98 nations, the International Labor Organization found that the use of digital labour networks increased rapidly between 2007 and 2021. (ILO). Self-employment accounts for more than half of the labour force in many emerging countries, while it accounts for less than a third of the labour force in many wealthy nations. This factor alone is expected to increase the independent workforce (ILO 2022). The largest single category of contract jobs is in the information technology and computing arena, at more than 59%. (including multimedia and web design). Copywriting and translation account for 15% of all independent work. In accordance with data compiled by the BLS, 32% of gig employees hold a bachelor's degree, while 45% hold a master's degree or greater (Statista Research Department

2022). Jobs for both data analysts and IT project administrators have increased by 23% and 31%, respectively, over the past few years (Hlebowitsh 2021). The results show that participation in the freelance economy spans the entire age range and educational spectrum. The age group between 25 and 34 years old showed the greatest activity and engagement. Although males are more prevalent in the freelance economy in some countries, women surpass men in the United Kingdom and Italy, according to the study, showing that gender plays no major part in the contract economy (Ostoj 2021).

Several scholars have also investigated freelance economy's effects (Healy et al. 2017). The freedom that comes with being a contract worker is why so many people choose it over traditional employment. Gigs can be beneficial for employers and employees alike. Employers can save money in the long run by not providing training or required tools to attract and retain talented employees at lower salaries. Workers also value not being treated differently because of their religion, ethnicity, disability, or where they were born when applying for a job, as well as not being forced to work in a segregated industry. As a result, they are able to maximise their income potential while still striking a healthy work-life balance (Graham et al. 2017).

One disadvantage of freelance work is that employees have little leeway in determining their fates, as they are locked into contracts that cannot be modified once signed on digital platforms (Rodrigues et al. 2021). Freelance work has many of the same negative connotations as low-wage, insecure work as a consequence of this general perception. According to studies, those who rely on gig labour are more likely to experience social isolation, overwork, poor pay, and unemployment due to the lack of a formal employment contract (Hardy and McCrystal 2022; Scuotto et al. 2021). This has contributed to the "gig economy's" explosive growth, which has seen it double in size in just a few years. The "gig economy" has become the new standard in the workplace, with all its advantages and disadvantages. The only real challenges are in adapting it in a sustainable way and making it fit with societal and governmental policies.

An study by Mastercard projects that the worldwide gig economy will generate \$455 billion by 2023, up from an estimated \$US204 billion in 2019. (2019 Mastercard and Kaiser Family Foundation Study). The value of the freelance economy is projected to reach \$335 billion by 2025 (Ahsan, 2018). But in reality, the number of Americans who rely on temporary employment has risen to 23.9 million, with another 10.2 million working gigs on the side (Ahsan, 2018). As of 2017, experts estimated that there would be 9.2 million independent contractors in the United States by 2021. The number of independent contractors in the United States increased by 51% between 2020 and 2021. (Kolmar 2022). Consequently, the growth of the freelance economy is speeding up and is likely to keep doing so. As a result, academics and policymakers should design initiatives to reward and channel entrepreneurialism for public good.

This study aims to do a keyword analysis of existing literature and come up with novel research queries. The study aims to (1) determine the most influential writers in the field, (2) determine the nations that have made significant advances to the research field, (3) determine the most frequently used keywords, and (4) determine the most frequently used keyword evolution and clusters. The study's findings are given in the concluding chapter. The goals of this research can be broadened through the use of evaluation methods and tools, as well as bibliometric analysis (Boloy et al. 2021).

3. Methodology

In this we conducted a systematic bibliographic review was conducted. Reputed databases such as Elsevier's "Scopus", Clarivate Analytics "Web of Science" and "Google Scholar" was investigated. We finalised 686 papers out of 2297 total papers found by selection criteria. All of the data and sources for the 686 articles were then saved in Microsoft Excel. Figure 1

displays the methodology used to pick R Studio, the best software for bibliometrics analysis, for processing 686 papers.

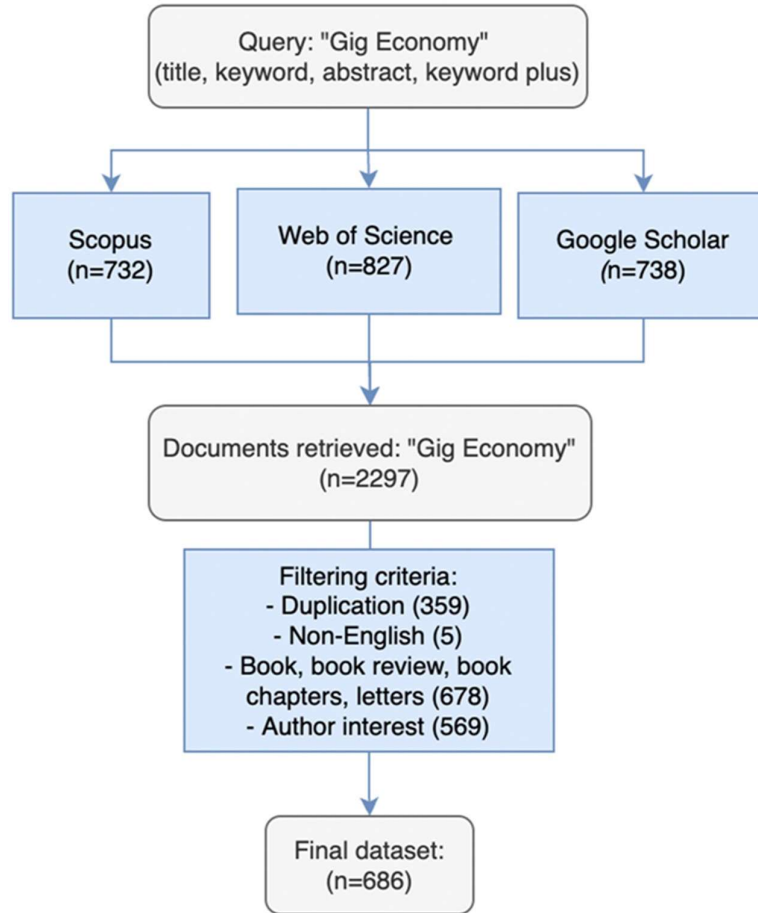


Figure 1. Article selection process.

The bibliometric technique can be used to investigate and evaluate scholarly papers. This dataset is used to examine the intellectual structure of the subject, as well as patterns of collaboration, trends in research, and individual study components (Donthu et al. 2021). This work includes illustrative instances of network research, collaborative efforts, countries, writers, and keywords..

4. Findings

4.1. Insights from Review : The below Table 1 comprehensively depicts all papers published between 2014 and 2022. (Under our study only)

Table 1. Depicting Main information by Rstudio. Source : Output generated by Rstudio

Description	Results
Timespan	2014:2022
Sources (Journals, Books, etc.)	430
Documents	686
Average years from publication	2.42
Average citations per document	8.952
Average citations per year per doc	2.475
References	27,775
Document Types	
article	456
article; book chapter	26
Article; early access	65
book	4
book review	15
correction	1
editorial material	33
editorial material; book chapter	7
meeting abstract	1
news item	1
proceedings paper	53
review	19
Keywords Plus (ID)	889
Author's Keywords (DE)	1778
Authors	1309
Author Appearances	1591
Authors of single-authored documents	216
Authors of multi-authored documents	1093
Single-authored documents	242
Documents per Author	0.52
Authors per Document	1.91
Co-Authors per Documents	2.32
Collaboration Index	2.46

Figure 2 depicts the increase in publications between 2014 and 2021. Publication numbers appear to be increasing at a rate of 42.5 percent every year. From 43 papers in 2017 to 173 papers in 2021, the number of publications climbed substantially. Changes in the labour market and employment under COVID-19 included the use of a blended workforce and the rise of gig work . As a result, it's possible that between 2019 and 2021, the number of scientific papers published may increase. In addition, more than 70 percent of the papers published are about human resources or the labour market. In 2022, the gig economy will employ 59 million persons, or 36% of the US labour force .

Lotka's law, often known as the "inverse square law of scientific production," calculates the output of scientific papers and gauges the output of authors. As a percentage of authors, the number of articles published by an author, c , is equal to the constant, and n is the slope of the log–log graph (Chang et al. 2010). $R^2 = 0.9066696$, $c = 0.614453$, $p = 0.5412431$, according to Rstudio findings. Figure 3 depicts the Lotka's law curve.

Figure 2: Number of Publication on yearly basis. Source: Output generated by Rstudio

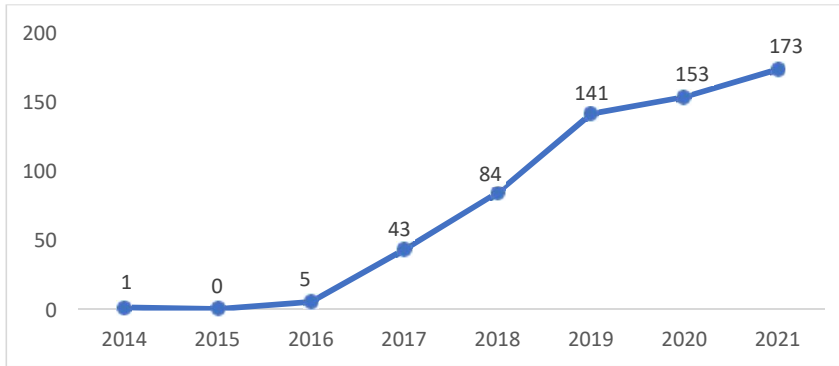
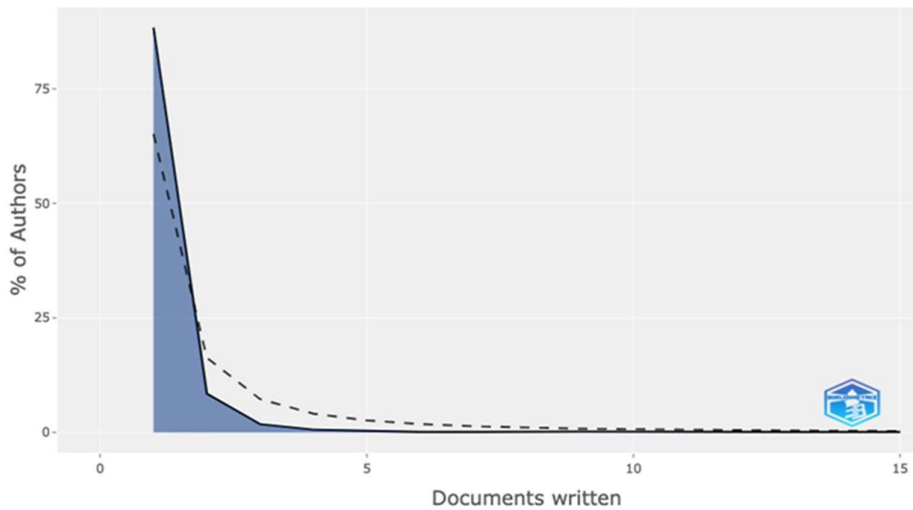


Figure 3. The above graph depicting Lotka's law curve. Source: Output generated by Rstudio.



Only ten percent of the authors (a total of 27) had written two pieces, according to the findings. A total of 85.1% of authors have only published one article in their field. In addition, just 2% of the writers collaborated to publish three works together, which is a low percentage. Using the number of corresponding authors, we can calculate the number of authors published in Table 2.

Table 2: This table 2 depicts several articles and a number of authors derived from Lotka's law curve. Source: Output Generated by Rstudio

Number of Articles	Number of Authors	Frequency
1	229	0.8513
2	27	0.1003
3	7	0.0260
4	1	0.0037
5	3	0.0111
6	1	0.0037

Six hundred eighty-six papers have been written about the "gig economy" since 2014. As a result, there are 68.9% articles, 13.3% conference papers, and 5.7% books. About 53% of the

papers since 2014 dealt with employment relations, labour transformation, and the adverse and advantageous effects of freelance work.

4.2 Source

From 2014 to 2020, 456 articles have been published. The gig economy is well-represented in the journal *New Technology Work and Employment*, where there are a total of 20 articles. Tables 3 and 4 indicate the classification of journals, as well as the quantity of articles and the most highly ranked journals. The h index is a metric used to assess a journal's output and citation impact. There is no other journal with the highest h index and largest citation count than "Work, Employment, and Society," according to Table 3.

Table 3. Classification of Journals based on their impact score

Source	h_Index	g_Index	Citation	Start Year
Work Employment and Society	8	14	582	1984
Journal of Industrial Relations	7	11	142	2018
New Technology Work and Employment	7	14	262	2018
Economic and Labor Relations Review	5	9	253	2017
Journal of Managerial Psychology	5	5	118	2019
New Media and Society	5	5	126	2018
Antipode	4	4	61	2019
Management Science	4	4	180	2018
Transfer-European Review of Labor and Research	4	6	311	2017
Capital and Class	3	5	26	2019

Table 4. Frequently occurring journals. Source: Output generated by Rstudio.

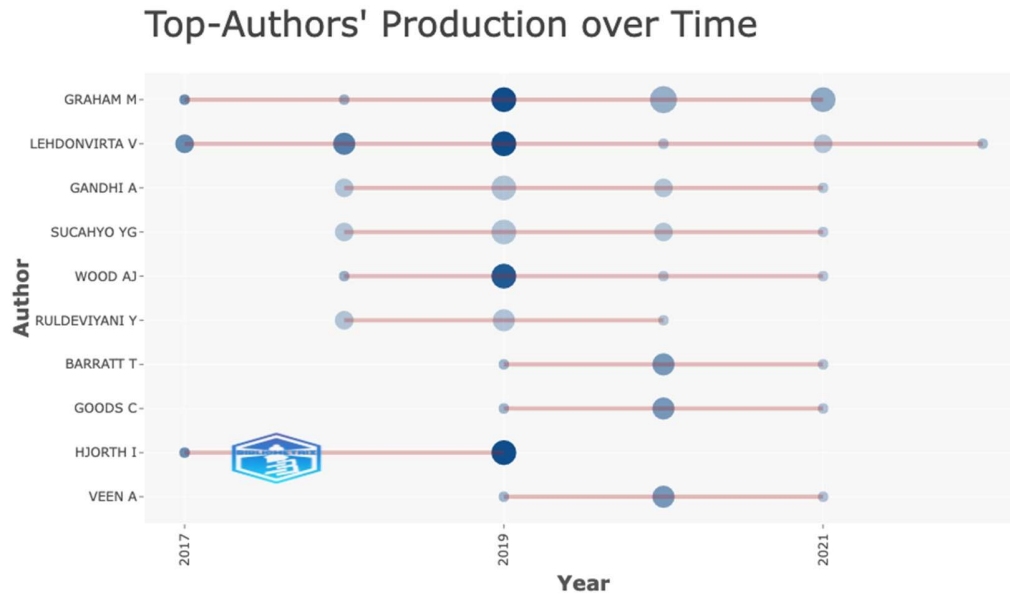
	Journal	Number of Articles
1	New Technology Work and Employment	20
2	Work Employment and Society	16
3	Journal of Industrial Relations	14
4	Economic and Lab Our Relations Review	11
5	European Labor Law Journal	10
6	New Media and Society	9
7	Capital and Class	7
8	Environment and Planning A-Economy and Space	7
9	International Journal of Human Resource Management	7

4.3 Authors

From 2018 to 2019, the number of publications has nearly doubled compared to the previous year. There have been 1309 authors identified so far, indicating a dispersed authorship. Single-author articles accounted for 18.4% of the total authors, while multi-author articles accounted for 81.6 percent. As a result, the collaboration index is 2.46. The dominance factor, which takes into account the number of articles written by a single author and those written by multiple authors, placed Graham at the top of the list.

Figure 3 shows similar data, with the most prolific authors over time. The most productive authors in the field are highlighted. The best-selling authors of all time are Graham, Lehdonvirta, and Gandhi, in that order. As a result, the best authors in this topic are Graham and Lehdonvirta. There are more publications and citations in the larger and darker circle. As can be seen in Figure 3, the darker the colour represents more citations. Figure 4 depicts the writers' output (citations and publications per year) as a function of time, as shown in the graphs.

Figure 4. Revealing Authors by Productivity Levels Source: Output generated by Rstudio



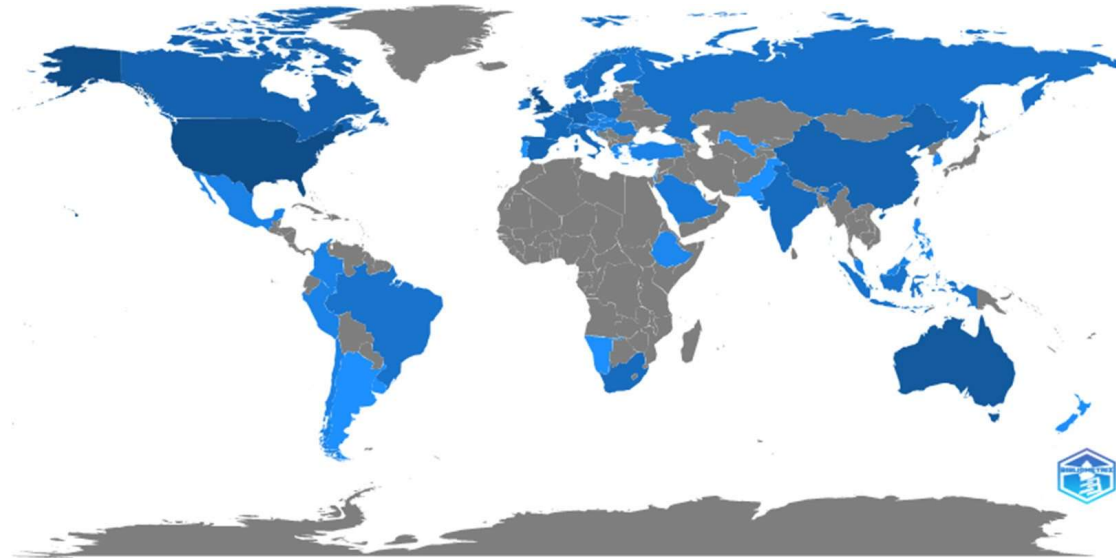
4.4 Countries

Authors writing about the gig economy tend to come from the wealthiest countries. Most start-ups and gig jobs were formed in the United States, which is the dominant country. After that, the United Kingdom (114 articles) and Australia (56 articles) follow. To see which countries have the most articles, look no further than Table 5.

Table 5: Author's Country Origination. Source : Output Generated by Rstudio

Country	Articles (SCP + MCP)	Freq	Single Country Publication (SCP)	Multiple Country Publication (MCP)	MCP_Ratio
USA	161	0.27013	145	16	0.0994
UK	114	0.19128	79	35	0.307
Australia	56	0.09396	49	7	0.125
Canada	25	0.04195	22	3	0.12
Spain	21	0.03523	19	2	0.0952
China	20	0.03356	12	8	0.4
Germany	18	0.0302	15	3	0.1667
India	14	0.02349	13	1	0.0714
Italy	13	0.02181	12	1	0.0769
Poland	13	0.02181	12	1	0.0769

The country's scientific output is depicted in Figure 5, which was made using "Biblioshiny" and Rstudio. Depending on the depth of blue, varied productivity rates are indicated, such as dark blue indicating high productivity and grey indicating no articles at all (Fusco et al. 2020). Figure 5. Scientific Production by country. Source : Output generated by Rstudio.

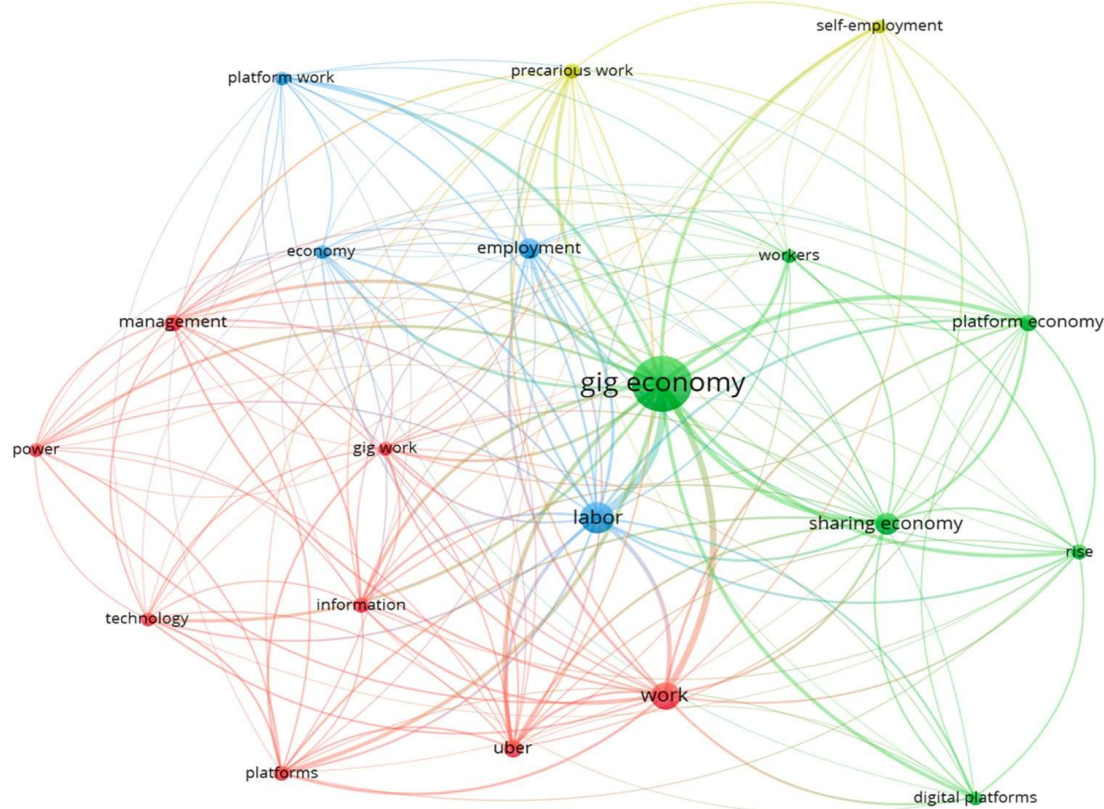


The gig economy and platform mediated economy are frequented by 53 and 38 occurrences, respectively, of the word "gig," which is the most common. Next up are terms like Uber, Gigs, and Platform Works. Findings show that gig work and labour are the most sought-after terms in



Figure 6: Most highlighted Keywords. Source: Output generated by Rstudio in the study (as shown in Figure 6), it is clear that the gig economy's impact on employment is thoroughly studied.

Figure 7: Structural Visualisation of Keywords. Source: Output generated by VOSviewer



Companies can now spread their activities across the country or to other countries, and individuals can now live, work, and travel around the world thanks to globalisation. Corporations that are transnational or multinational have played a significant influence in the global economy. Meanwhile, digitalisation has expedited multinational firms' global expansion and communication and transportation trade internationally. Digitalisation has taken globalisation to a new level in today's commercial sector. Companies have been able to hire talent online, without having to travel, thanks to advances in technology. Individuals have also been able to find new ways to make money. One such example is the "gig economy." The majority of digital gig workers are hired from Asia's developing countries, primarily Pakistan, India, and the Philippines, by corporations based in the United States and the United Kingdom. Globalisation and digitisation (digital gig employment) made it possible for people to work for multinational firms regardless of where they were physically located. Globalisation and digitalisation have resulted in a new form of employment: the gig economy.

5. Conclusions

This study examined the gig economy statistically, which compiled data from the worldwide scientific literature. In bibliometric analysis, the basic characteristics of papers, authors, coauthorship between nations, keywords and most-cited articles were taken into account. Title and keyword analysis were also examined in this study. According to the findings, developed countries are engaged in this area of research and work closely together. The United States, the United Kingdom, Australia, and Canada had the most publications on the Gig economy. Digital platforms and human resources have been the focus of recent research. Since most articles discussed the interaction between employer and employee, we can conclude that the gig economy significantly impacts employment.

Even if there are drawbacks, companies and freelancers might gain from gig labour. There are numerous advantages to using a digital labour platform, including lower costs and the ability to hire workers from anywhere in the world. This strategy is a result of having a specialised workforce worldwide at a lesser cost. Some of the negatives of gig employment include insecurity about your income, the possibility of termination, and inadequate compensation. Independent review of service contracts and enforcement of contractual obligations are a must for platform employees (Hardy and McCrystal 2022).

Gig workers' demographic data, COVID impact, and COVID's impact on gig workers have been examined in the bulk of studies studied in this paper. It is also vital to regulating taxation, ethics, social welfare, and performance monitoring, all of which are still unregulated and understudied parts of the economy. Working on a platform or as a gig worker can be difficult because of the physical environment, monitoring and performance evaluation, contractual obligations, employer selection, and data privacy issues. Research in this area will be aided by the insights reported in this paper. Researchers and academics will be able to use the information from this study to further their research and advance scientific knowledge as a whole.

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