Article

The Gig Economy: Current Issues, the Debate, and the New Avenues of Research

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Abstract: In the context of the debate on platform economy, on the one hand, and the gig economy, on the other, this paper delineates the conceptual boundaries of both concepts to query the gig economy research included in the Web of Science database. The initial search, cutoff date February 2020, targeting “gig economy” returned a sample of 378 papers dealing with the topic. The subsequent analysis, employing the science mapping method and relating software (SciMAT), allowed to query the body of research dealing with gig economy in detail. The value added by this paper is fourfold. First, the broad literature on gig economy is mapped and the nascent synergies relating both to research opportunities and economic implications are identified and highlighted. Second, the findings reveal that while research on gig economy proliferates, the distinction between “platform” and “gig” economy frequently remains blurred in the analysis. This paper elaborates on this issue. Third, it is highlighted that the discussion on gig economy is largely dispersed and a clearer research agenda is needed to streamline the discussion to improve its exploratory and explanatory potential. This paper suggests ways of navigating this issue. Fourth, by mapping the existing research on gig economy and highlighting its caveats, the way toward a comprehensive research agenda in the field is highlighted.

Keywords: gig economy; platform economy; science mapping; WoS; servitization; digital economy

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1. Introduction

Advances in sophisticated information and communication technology (ICT) are the key source of disruption, both positive and negative, in today's politics, economy, and society [1,2]. One of the still nascent and, therefore, underexplored fields is the platform economy that denotes the possibility of connecting employers and employees via online digital platforms to accomplish very specific tasks of diverse degrees of complexity [3–5]. While literature on the technical aspects underlying the emergence of platform economy abounds [6–8], at this point, suffice it to say that blockchain and safe contracts are bound to introduce a new wave of advances in this domain, rendering the platform economy one of the key drivers of business activity in the economy; caveats certainly exist.

One of the corollaries of the emergence of platform economy is the phenomenon of gig economy. In contrast to the traditional definition of gig economy that used to denote short-term contracts and freelance work, as opposed to permanent jobs, the onset of platform economy redefines the very concept of the gig economy [9–11]. In other words, the ever more advanced technological solutions, involving blockchain, smart contract, and AI, enhance the capacities, opportunities, and economic synergies that the, by now digital, platforms can deliver. Thus, representing a departure from the classic definition of gig economy, this digital-platform-based gig economy+ suggests that new fields, domains, and modes of collaboration will be possible. In contrast to the traditional meaning of gig economy, gig economy+, from now on referred to as gig economy, on the one hand, requires a specific set of skills, notably digital literacy, ability to work in geographically

distributed virtual teams, etc., and on the other, suggests that high-value-added jobs, or gigs, will also be feasible. In brief, gig economy requires a serious reconsideration [9].

Considering the substantial and crucial entanglement of platform and gig economies it is necessary to carefully delineate the two. One way of looking at this issue is to view the platform economy through the perspective of the digital platform itself and, thus, through the function that the ICT-enabled platform performs. In this view, the digital platform serves as the intermediary between actors operating on the market. Advances in ICT expanded the range of activities a digital platform was an intermediary for from activities such as sale of goods, e.g., Amazon in its early years of existence, to an entire ecosystem of digital-platform-based collaborations [12] including the sale of goods and services and the provision of labor [13]. The emergence of the digital platform, and the array of implications for the market players it bears, makes it challenging to conceptualize it. With the (digital) platform economy owing its consolidation to advances in ICT and the related emergence of ICT-based tools enabling communication (via social networking sites and associated tools), safe transactions (via safe contracts and blockchain-based solutions) etc., it may well capture the basics of traditional market activity, but it may also give rise to new, so far largely absent, aspects of economic exchange. For instance, research suggests that digital-platform-mediated services require that people share also social value beyond mere economic considerations [14]. In this view, gig economy is but a part of the broader notion of platform economy. A rich body of research on both platform and gig economy exists [15–18]. However, the COVID-19 pandemic, the quarantine, and the necessity of relying on remote modes of work, created a momentum to rethink the nature and the added value of both platform and gig economy, respectively. Corresponding advances in blockchain technology, smart contracts, and AI add to that momentum. In this context, regulatory issues come to the surface of the discussion on gig economy too, albeit respective advances are geographically fragmented and confined by national and regional labor markets' specificity [19–23]. Considering the value, the potential, and the inescapability of both platform and gig economies, new insights and perspectives are needed to query the field. This paper upholds this plea to map the key areas of research dealing with gig economy and to identify topics and issues that remain underdiscussed. The argument in this paper is structured as follows.

The following section offers an insight into the research model underpinning the discussion in this paper. To this end, the key research steps and the key analytical tools employed for this study are elaborated on. In Section 3, the findings are presented. Then, a discussion and conclusions follow.

2. Materials and Methods

This article uses science mapping analysis to display scientific research structural characteristics, and academic field architecture [24] to address the development of gig economy studies and identify the critical area of work and employment research. The following sections outline the details, including the limitations, of this approach.

2.1. Science Mapping and Bibliometric Analysis: Their Relevance and Value Added

Science mapping is a graphic representation of how certain knowledge areas, documents, or authors are related to one another as shown by their physical proximity and relative locations [25]. Science mapping can be applied to any field concerning specific research issues [26]. Science mapping applies automated, algorithm-based assessment, thus providing unbiased insight into the research subject based on secondary bibliometric data. It can be viewed as a development of traditional methods of bibliometric analysis.

Bibliometric analysis employs a quantitative approach for the evaluation of published research [27] and applies statistical methods to develop an objective and quantitative perspective on a selected area of study [28], thus greatly improving the quality of the review [29]. The most common methods of bibliographic analysis are citation-based analysis, co-authorship analysis, and keyword co-occurrence analysis [30].

For the purpose of the analysis presented in this paper, science mapping based on keyword co-occurrence analysis has been adopted, because it provides an insight into the content of the specific topics that are queried. The co-occurrence analysis assesses the frequency of keyword co-occurrence (the number of papers in which two keywords appear together), thus providing an insight into the interaction strength between keywords in the analyzed pool of scientific papers [31]. Therefore, keyword co-occurrence analysis is employed to explore the concept networks, to build thematic network, and to review trends in research themes, because keywords are provided to represent the primary focus of the articles [32].

The analysis carried out in this study serves to identify themes and their thematic networks based on keyword co-occurrence. SciMAT software was used in the analysis to achieve a fine-grained result [33]. SciMAT facilitates theme visualization in a strategic diagram and thematic network (theme network) representation enabling research gap analysis [27].

A research strategic diagram is divided into four quadrants representing four types of themes: motor, basic, specialized, and emerging themes. Each theme is characterized by two dimensions, i.e., centrality and density [34]. Based on these characteristics, a theme is allocated to a given quadrant of the strategic diagram.

The dimension “centrality” measures the degree of interaction of a thematic network with all other thematic networks in the diagram, thus providing an insight into the strength of the thematic network’s external ties. Centrality can be viewed as a measure of theme importance in the research area. Callon’s centrality [34,35] is used as default network measure on each detected theme and its thematic network in SciMAT [36]. Callon’s centrality is applied to measure the degree of interaction of a thematic network with other thematic networks. It is defined as follows:

$$c = 10 \sum e_{uv} \quad (1)$$

with u an item (keyword) belonging to the theme and v an item (keyword) belonging to other themes [37].

“Density”, in turn, examines the internal strength of the thematic network, that is the strength of links between the number of co-occurring keywords that create the thematic network (internal ties). Density can be viewed as a measure of theme development [24]. Callon’s density is used in SciMAT to measure the internal strength of the network. It is defined as follows:

$$d = 100 (\sum e_{ij} / n) \quad (2)$$

with i and j items (keywords) belonging to the theme and n the number of items (keywords) in the theme [37]. Please, consider Figure 1 that offers a visualization of the strategic diagram template.

Figure 1. Strategic diagram—an example.

Motor themes are well developed and important for the research area and have strong centrality (well-developed external ties with other themes) and high density (well-developed internal ties, within its thematic network). Therefore, motor themes make a major contribution to the research area. Basic themes are important themes for the research area but are not well developed in terms of their internal ties within their thematic networks. Therefore, basic themes make an important but not focused contribution to the research area. Specialized themes correspond to themes that are internally well developed but are isolated from the other themes and, therefore, make a limited but focused contribution to the research area. Themes with a poorly developed internal and external network represent emerging themes in the research area. The sphere size can represent bibliometric indicators, such as the document number or number of citations by documents in the theme and in its internal network, thus adding an additional analytical dimension [24].

The science mapping approach can be used to analyze thematic networks to provide an additional dimension to the research landscape analysis and more fine-grained insight into the themes. Each theme can be visualized with a number of keywords and their interconnections that build a network graph, called a “thematic network”. By default, the thematic network is designated by the most significant keyword. This keyword appears in the center of the graph, and it is the same as the theme name. The sphere size with the keywords in the thematic network corresponds to the number of documents where a given keyword occurs. The thickness of the line between two keyword spheres is proportional to the equivalence index [37]. The equivalence index is given by the following equation:

$$E_{ij} = (C_{ij}^2) / (C_i \times C_j) \quad (3)$$

The number of occurrences of the keyword i is C_i , and the number of occurrences of the keyword j is C_j . Two keywords, i and j , co-occur if they are used together in the description of a single document. The number of co-occurrences of the keywords i and j is C_{ij} that is the number of documents that are described by both keywords in the set of keywords used to index them. Note that when two keywords always appear together, the equivalence index equals unity, when they never occur together it is zero [34].

The equivalence index can be viewed as a measure for normalized co-occurrence frequency. Therefore, the greater the proportion of documents in which the two keywords appear together to the total number of documents where they occur, the thicker the line between the keyword spheres in the thematic network [37]. As an example, a thematic network is presented in Figure 2 with theme A and keywords 1, 2, 3, 4, 5, and 6.

Figure 2. An example of thematic network. Theme A and keywords 1, 2, 3, 4, 5, and 6.

The science mapping analysis employed in this research follows a six-step procedure: data search, data refinement, standardization and network creation, map creation, analysis and visualization, and performance analysis [36]. In this research, the bibliometric data was obtained through the Web of Science (WoS) database and the sample used in this study was limited to published articles. To guarantee the homogeneity of the sample, books, conference proceedings, and reports were not considered in the analysis.

As a novel approach, science mapping analysis has already been applied in the field of social and economic studies. The same method, including SciMAT software and the use of strategic diagram analysis, has been applied to support research into a large variety of topics including among others: future of work [10,24], big data [38], circular economy [39], e-government [40], sustainability of family firms [41], and creativity in business economics [42].

2.2. Limitations

This study uses science mapping analysis based on bibliometric data. Therefore, it is not devoid of embedded limitations related to the use of this research method and other limitations related to the scope of the study. Two basic limitations shall be highlighted here.

First, consider that science mapping, as a method of analysis, is based on the assumption that the content of the articles included in the analysis is adequately represented by the keywords provided by authors of specific texts. In this view, the quality and accurateness of the outcome is a function of the quality and accurateness of the input data. This issue cannot be controlled during research employing science mapping. Nevertheless, to address this limitation, other research methods, such as systematic analysis and text mining methods, could be employed to bypass the this defined caveat inherent in the science mapping method.

Second, the findings of a query conducted by means of science mapping depends on the choice of language of the data to be examined, i.e., the articles. While the issue of the prevalence of the English language literature is self-explanatory, the really important issue to be raised is that of the existence and accessibility of databases. In brief, science mapping and bibliometric analysis tend to be applied to data included in Scopus and WoS. This certainly raises questions of inclusion, exclusion, and bias in [43–46]. Despite the comprehensive scope of the WoS database, the use of other databases such as Scopus would have extended the scope of the analysis. As far as the focus of the study is concerned, this analysis targets the connection between gig economy and future of work. Other perspectives on the gig economy body of knowledge could be applied to provide valuable insight and research progress.

3. Results

The data search in this research covered texts indexed in the WoS identified using the specific phrase “gig economy” in any fields as of 20 August 2020. The search returned 378 articles. In the data refinement, the sample was limited to an article published in a scientific journal as all other texts were excluded to ensure adequate scientific rigor of the analysis. This step resulted in the sample being limited to 269 articles with 1142 different keywords. Further data refinement enabled keywords to be grouped by combining singular and plurals as well as British and American spellings in the same groups to avoid keyword duplication.

3.1. Strategic Diagram

The next stages of the science mapping process were performed with the use of SciMAT software, which enabled the creation of the following strategic diagram for gig-economy studies presented in Figure 3.

Figure 3. Strategic diagram of gig economy themes (number of documents).

Twenty themes have been identified and mapped in gig economy research. The size of the theme sphere is proportional to the document number covered by the thematic network stated below each theme label. The themes with the highest number of articles in gig economy research landscape are “employment”, producing 85 documents; “sharing economy” producing 59 texts; and “information”, producing 37 articles. This metric, however, can be viewed only as a proxy for theme popularity. It does not provide insight into theme centrality and density for gig economy research, which is achieved with strategic diagram analysis (data about centrality and density of each theme are included in Appendix A, Table A1).

Gig economy science mapping analysis using a strategic diagram enabled the following to be identified: six motor themes (employment, organization, labor-standards, virtual work, consequence, home), four basic themes (sharing economy, social-media, information, flexibility), four emerging themes (culture, platform-capitalism, decision, migration), three specialized themes (governance, crowdworking, UK), and two borderline themes (future and freelancing) between emerging and specialized and between specialized and motor themes, respectively.

3.2. Motor Themes

Primary research themes have been identified as motor themes that have high centrality and density for the gig economy research landscape. From among six themes, those with the highest centrality were chosen for more focused analysis, and these were employment, virtual work, and organization.

3.2.1. Employment in the Gig Economy

Employment is the major motor theme in gig economy research (see Figure 3), with 85 documents and 558 citations. The employment thematic network exploration reveals that its internal network covers the following keywords: work, labor, precarious work, job quality, and autonomy as presented in Figure 4 below. (Data about the equivalence index in the employment thematic network are included in Appendix A, Table A2).

Figure 4. Thematic network (employment) in gig economy research.

The employment thematic network includes terms related semantically to labor and work. The remaining keywords, which were job quality, autonomy, and precarious work, indicate that the employment theme in gig economy research is studied predominantly with a focus on the supply side of the labor market.

Employment institutional arrangements and worker status in the gig economy remain a crucial research area, while there is no consensus on definitions so far, discussed by De Stefano [47], Tassinari and Maccarrone [18], and others. Gandini [48] stated that workers who work through (and for) a digital platform, such as gig workers, are not merely “users” of a platform but actually paid laborers. Friedman [49] called the intermediary platform a “shadow employer”. Ashford, Caza, and Reid [50] underlined that the gig economy consists of “people working independently, outside of organizations”.

Employment in the gig economy undermines the popular assumption related to human capital at work. The research results tentatively indicate that an employee with high or specialized skills is no longer the most desirable worker. A gig economy typically means microtasking, i.e., work fragmentation into simple activities that can be easily codified. According to Gandini [48], a gig economy employer strives to make every task operationalized and codified so that the worker performing that task becomes an

interchangeable part of the process and can be replaced with little disruption. As a result, in the gig economy, employment ceases to fulfil its traditional social functions, i.e., a source of professional identification, prestige), and becomes a commodity.

The gig economy is often associated in popular discourse with the expression “new work arrangement”. Due to the Uber platform, often considered a precursor of these new arrangements and a hallmark of the gig economy, the way work is organized in the gig economy is sometimes dubbed “uberization” of work [51]. For now, uberization is mainly researched in relation to employment arrangements. In the future however, the concept of uberization may be expanded to cover other areas of the economy and society as well.

3.2.2. Virtual Work in the Gig Economy

Another motor theme identified in the course of our analysis is “virtual work”, with 19 articles and 178 citations. This is one of the smallest motor themes in terms of the number of articles but has a significant level of centrality and density within the gig economy research landscape to consider it for more in-depth analysis. The virtual work thematic network consists of the following keywords: gig work, temporary worker, human resource management, determinants, and motivation, as presented in Figure 5. below. (Data about the equivalence index in the virtual work thematic network are included in Appendix A, Table A3).

Figure 5. Thematic network (virtual work) in gig economy research.

Virtual work practices have been seen to penetrate real-world work routines, e.g., workers can easily collaborate between various geographical locations, but more distinctly virtual collaboration is becoming common even among workers who are collocated [52].

Ashford et al. [50] observed that alternatives to traditional organization and traditional work are developed based on virtual work, on-line communication, and virtual workspace. The virtual work theme stresses the creation of a new profession, i.e., virtual assistant, and the development of virtual economies [53].

The gig economy and gig platforms cater for both kinds of work, physical and local, versus virtual and global [54]. Uber offers physical local work for low-skilled workers. Fully virtual and global work is offered by MTurk (Amazon Mechanical Turk, a crowdsourcing website) for low-skilled workers, but examples of gig economy platforms for highly skilled professionals, such as LabMate, were also analyzed [11].

There is a research consensus that virtual work in the gig economy requires new management routines, as gig workers are also supervised virtually [55]. In the search for an adequate metaphor for virtual work in the gig economy, it has been described as a “virtual assembly line” [56]. Moreover, virtual work has been said to contribute to the physical atomization of work and that has given rise to virtual communities of gig workers [57].

The researchers seem to lean toward analyzing threats arising from the development of virtual work as indicated above. Only a limited number of studies highlight the benefits of virtual work that can be applied to the gig economy. These include not only organization gains such as cost reduction, risk reduction, and increasing operational efficiency but also advantages for virtual workers, such as a greater feeling of autonomy and job satisfaction, less work–family conflict due to helping workers juggle professional and personal work, and less time spent commuting [53].

3.2.3. Organization in a Gig Economy

Work and business are being transformed within the gig economy to an extent that poses a challenge for existing management theories to accommodate these new arrangements. The next motor theme identified in the gig economy research landscape is “organization”, which produced 23 texts and 235 citations and the highest density and centrality, which places this topic at the heart of the gig economy debate. The organization thematic network consists of the following keywords: management, contingent work, resistance, subjectivity, and construction (identity), as shown in Figure 6 below. (Data about the equivalence index in the organization thematic network are included in Appendix A, Table A4).

Gig economy research addresses the fundamental aspects of an organization [51]. The boundaries as to who should be considered an organization member are fiercely debated among scientists. The answers to such dilemmas are of fundamental importance to furnish the institutional void in which organizations in the gig economy operate. Under the current conditions, platform-enabled gig work is managed in the absence of a structured employment relationship between the organization and those cooperating with it, and this setup is resisted by workers [58]. At the same time, traditional human resource management (HRM) tools such as remuneration and benefits, performance feedback, training et cetera, become obsolete under gig economy conditions.

The hallmark of the platform, a primary business model in the gig economy, is a risk-management practice that transfers the maximum risk from the organization to the platform users. This increases organization competitiveness as it greatly reduces operating costs, such as employees’ medical insurance, paid sick leave, and pension contributions. According to Meijerink and Keegan [59], this presents a paradox, as intermediary platform organizations simultaneously disavow employers’ responsibilities while they do exercise considerable control over work time, place, and quality with selected HRM instruments.

While in traditional organizations HRM activities are the primary tasks of HR professionals and line managers, in the gig economy this responsibility is shared among intermediary platforms, gig workers, and end-users. It has been emphasized that gig workers may even be deprived of a human supervisor. This does not, however, portend supervision absence, as control has been redesigned and is exercised by algorithms. Algorithm-based control in the workplace operates through a recommendation mechanism and users’ ratings replace worker evaluation and recognition [57].

Figure 6. Thematic network (organization) in gig economy research.

It has been observed that gig workers are individually and collectively resisting algorithm-based control [58]. Moreover, digital gig work platforms seem to be designed as organizational models that “invisibilize” the managerial figure, which remains hidden and inaccessible for workers as it sits behind the screen of a digital device and a set of anonymous notifications, and prevents workers from socializing with each other, thus reducing the potential for resistance and unionization [48].

The gig economy organizational research perspective highlights the severe tension between the intermediary platform, gig workers, and end-users. As the law and institutional changes do not keep up with the changes imposed by gig economy growth, many conflicts remain to be resolved by local courts on case-by-case basis [59]. However, scientific research improves the understanding of existing practices and can contribute to the resolution of more systemic disputes.

3.3. Basic Themes—Sharing Economy

Four basic themes have been identified in gig economy research: social media, sharing economy, flexibility, and information. The basic themes have a high centrality and low density of thematic networks. Therefore, they are important for gig economy research, but their internal thematic networks are relatively sparse as connections between keywords tend to be relatively weak and less numerous.

The most prominent basic theme in gig economy research field in terms of number of articles as visualized by the size of the sphere in a strategic diagram is the sharing economy. The sharing economy thematic network consists of the following keywords: platform economy, self-employment, employment contract, labor market, and Uber presented in the Figure 7. (Data about the equivalence index in the sharing economy thematic network are included in Appendix A, Table A5).

Figure 7. Thematic network (sharing economy) in gig economy research.

A particularly strong thematic connection in this area of gig economy research has been identified between the “sharing economy” and “platform economy”, between the “sharing economy” and “Uber”, as well as in the thematic triangle “sharing economy”, “self-employment”, and “employment contract”.

The interconnectivity between the gig economy, sharing economy, and platform economy and its impact on work and employment has been the subject of numerous studies. The research points out internet platform use by various professions as a cornerstone of both the sharing and gig economy, indicating their affiliation to the broader concept of the platform economy [3,9,10]. Therefore, platform owners secure surplus value from a transaction via technological control over transaction facilitation in both the sharing and gig economy. However, labor, as a factor of production, is more commonly used in gig economy ventures [60], whereas capital is a more important source of surplus in the sharing economy [48]. Companies—internet platform operators—prefer to embrace sharing economy rhetoric, rather than acknowledge the gig economy affiliation, in order to build an image of being entrepreneurship-supporting entities [61]. This approach is used to support their claim that their de facto workers are independent entrepreneurs or self-employed specialists, which excludes them from labor law standards, granting more power to platform operators [62].

An important example used to stress the connection between the gig economy and sharing economy with self-employment and an employment contract as well as a flagship subject on many studies in this field, is Uber [51]. Most studies highlight negative aspects of Uber’s performance, among others the company’s attempts to misclassify workers and employ the most economically vulnerable [63]. This has led to calls for more corporate

social responsibility [64] and regulation [65]. Further in-depth empirical studies have revealed that the development of Uber indeed had adverse effects on the earnings of incumbent workers in the industry; however, such distributional impacts do not always translate into worse employment prospects in traditional jobs [66].

3.4. Emerging Themes—Culture

As a result of the analysis, five emerging themes were identified (culture, decision, labor law, migration, and platform capitalism) and one border theme between the emerging and specialized theme domain (future), which will be included in this section of the analysis.

An emerging theme with the highest density and centrality is “culture”, and its proportionate importance within the emerging theme is additionally confirmed by the highest number of articles. The “culture” thematic network in the gig economy has vital importance for understanding work in the gig economy, which is proven by the keywords in its network, which include the following: working life, on-demand labor, surveillance, identity, and political economy, as presented in the Figure 8 below. (Data about the equivalence index in the culture thematic network are included in Appendix A, Table A6).

Figure 8. Thematic network (culture) in gig economy research.

Research on the culture theme in the gig economy demonstrates that online platforms that facilitate on-demand work are contested spaces with some characteristic business culture features, where on one hand algorithms may reshape organizational control through new efficient surveillance techniques [61], but on the other hand digital labor politics penetrates beyond the algorithmic power of the new technology [67]. Moreover, value extraction, exploitation of labor, efficacy, and inequality are among the most important areas for further studies using political economy theoretical lenses [68,69].

Researchers have attempted to address the working life and identity in the gig economy for various professions. In this stream of research, it has been shown that musicians routinely involved in activities that could be viewed as entrepreneurial in a gig economy are reluctant to label themselves as entrepreneurs [70]. Moreover, occupational identity is also problematic for drivers, due to the ambiguity of their legal classification and the precarious nature of their material conditions [57]. In order to address identity challenges and other demanding aspects of work-life culture, a number of coping strategies have been identified by researchers, which among creative workers include downplaying competition and conflict and changing career [71]. Studies show that while gig workers share some vulnerabilities that are highly harmful to their health, the extent of their exposure varies depending on regions of the world [72].

3.5. Specialized Themes—Freelancing

The results of a science mapping analysis for gig economy research shows that there are three specialized themes (governance, UK, crowdworking) and a one borderline theme between specialized and motor themes. This is included in this part of the review (freelancing). The proximity of the freelancing theme to motor themes and the high number of research papers focusing on this theme are important premises to select a freelancing thematic network for further analyses.

The visualization of the freelancing thematic network in gig economy research shows a network constructed with the keywords “outsourcing”, “digital work”, “digital labor”, “precarity”, and “business”. The network diagram shows the strongest connection between the keywords “freelancing” and “outsourcing”, as well as a strong connection within the triangle freelancing, precarity, and digital-work, as shown in Figure 9 below. (Data about the equivalence index in the freelancing thematic network are included in Appendix A, Table A7).

Precarity in digital work is highlighted as a crucial social and economic consequence of the rise of the gig economy [73]. This research analyses how gig-economy-driven precarity can result in a number of negative repercussions depriving individuals of choice and control as well as leading to experiences of disempowerment, alienation, anxiety, and insecurity [74]. Researchers vary in their proposed solutions to address these issues, but regulators and policymakers are mainly encouraged to strengthen the regulatory framework governing gig work, which may include significant amendments to labor law [75]. Such developments could include more effective law enforcement, a clearer definition of “employment”, creation of a new category of “independent worker” with adequate rights, and a review of the concept of “employer” [58].

The emergence of the gig economy is a reinforcement of the long-term trends of increasing contingent work, rising labor market flexibility, and increasing use of outsourcing [76]. The global reach of online platforms facilitating freelancing in services ranging from software development to copywriting and graphic design has been analyzed as a form of offshore outsourcing. Contrary to the traditional approach, where outsourced services are provided by large multinationals, in the gig economy, cross-border services are predominantly provided by individuals who are microproviders located in emerging-economy countries. This further diminishes the importance of home-country institutions such as labor regulations and promotes cross-border business [77].

Figure 9. Thematic network (Freelancing) in gig economy research.

4. Discussion and Conclusions

Against the backdrop of the inroads of ICT in today's economies and the resulting digitization and servitization of contemporary economies, the objective of this paper was to employ the method of science mapping to query the debate on gig economy [78]. In other words, the objective of this paper was to identify and map the existing, indexed in the Web of Science database, research on gig economy, to delineate the conceptual boundaries of gig and platform economy, and having done so, to critically examine the directions and underexplored synergies that have emerged in the gig economy research.

The findings of the examination thus performed suggest that the gig economy and its twin concept of platform economy offer a variety of still underexplored research opportunities. Five major points have been raised, queried, and substantiated in this paper. First, it is argued that while research on gig economy proliferates, the distinction between platform and gig economy remains blurred in the analysis. This paper addresses this issue. Second, the discussion on gig economy is largely dispersed, and a clearer research agenda is needed to streamline the discussion and improve its exploratory and explanatory potential. This paper suggests ways of navigating this issue. Third, taking into account the technology-driven features of gig economy today, a clear focus on diverse manifestations of gig economy at local, regional, national, and possibly transnational levels is needed to understand the plethora of implications it bears for the society and the economy [9,18]. Conversely, fourth, provided the flexibility and geographically distributed nature of gig economy, it is equally vital to explore factors that enable and/or constrain the development of the gig economy. This certainly brings the discussion to, fifth, questions of regulatory

frameworks and models of economic growth [9,10,21]. The paradox that the ICT-driven gig economy reveals is that space, distance, and territorial boundaries become increasingly obsolete in the digital economy [23]. This paper sets the background for this discussion to unfold in future research.

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Appendix A

Table A1. Strategic diagram of gig economy themes’ centrality and density.

Name (Theme)	Centrality	Density
Organization	55.43	30.48
Home	35.7	15.74
Virtual work	40.07	17.41
Future	17.59	11.11
Governance	24.91	14.49
Freelancing	32.59	16.16
Crowdworking	22.73	12.27
Employment	66.71	13.24
UK	31.98	11.48
Labor standards	32.76	26.73
Culture	23.9	10
Sharing economy	39.78	7.85
Flexibility	33.7	4.39
Social media	36.9	9.03
Information	44.23	4.83
Decision	13.52	7.54
Labor law	6.49	6.48
Migration	13.35	5.93
Platform capitalism	14.9	2.12

Table A2. Equivalence index in the employment thematic network.

Keyword 1	Keyword 2	Equivalence Index
Labor	Work	0.07
Labor	Precarious work	0.04
Labor	Job quality	0.03
Labor	Employment	0.08
Labor	Autonomy	0.04
Work	Precarious work	0.02
Work	Job quality	0.03
Work	Employment	0.09

Table A2. *Cont.*

Keyword 1	Keyword 2	Equivalence Index
Precarious work	Job quality	0.02
Precarious work	Employment	0.08
Precarious work	Autonomy	0.01
Job quality	Employment	0.13
Job quality	Autonomy	0.07
Employment	Autonomy	0.08

Table A3. Equivalence index in the virtual work thematic network.

Keyword 1	Keyword 2	Equivalence Index
Motivation	Gig work	0.03
Motivation	Human resource management	0.11
Motivation	Virtual work	0.11
Motivation	Temporary workers	0.11
Gig work	Human resource management	0.03
Gig work	Virtual work	0.13
Gig work	Temporary workers	0.03
Gig work	Determinants	0.03
Human resource management	Virtual work	0.11
Human resource management	Temporary workers	0.11
Virtual work	Temporary workers	0.11
Virtual work	Determinants	0.11

Table A4. Equivalence index in the organization thematic network.

Keyword 1	Keyword 2	Equivalence Index
Organization	Contingent work	0.12
Organization	Resistance	0.28
Organization	Subjectivity	0.17
Organization	Construction (identity)	0.19
Organization	Management	0.15
Contingent work	Construction (identity)	0.04
Contingent work	Management	0.02
Resistance	Subjectivity	0.33
Resistance	Construction (identity)	0.04
Resistance	Management	0.31
Subjectivity	Construction (identity)	0.06
Subjectivity	Management	0.1
Construction (identity)	Management	0.01

Table A5. Equivalence index in the sharing economy thematic network.

Keyword 1	Keyword 2	Equivalence Index
Employment contract	Sharing economy	0.07
Employment contract	Self-employment	0.07
Labor market	Sharing economy	0.05
Labor market	Self-employment	0.01
Labor market	Platform economy	0.01
Sharing economy	Self-employment	0.06
Sharing economy	Platform economy	0.07
Sharing economy	Uber	0.07
Self-employment	Platform economy	0.02
Platform economy	Uber	0.02

Table A6. Equivalence index in the culture thematic network.

Keyword 1	Keyword 2	Equivalence Index
Identity	Political economy	0.07
Identity	Culture	0.07
On-demand labor	Surveillance	0.07
On-demand labor	Culture	0.11
Working life	Culture	0.11
Surveillance	Culture	0.07
Political economy	Culture	0.11

Table A7. Equivalence index in the freelancing thematic network.

Keyword 1	Keyword 2	Equivalence Index
Digital labor	Precarity	0.01
Digital labor	Outsourcing	0.06
Digital labor	Freelancing	0.1
Digital labor	Digital work	0.02
Precarity	Business	0.02
Precarity	Outsourcing	0.02
Precarity	Freelancing	0.11
Precarity	Digital work	0.11
Business	Freelancing	0.08
Outsourcing	Freelancing	0.27
Outsourcing	Digital work	0.07
Freelancing	Digital work	0.11

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