Exploring Online Food Delivery: An Examination through Bibliometric and Visualization Analysis

Anuar Sulaiman, Abdul Khabir Rahmat* & Abdul Hakim bin Abdul Razak
Universiti Teknologi MARA, Malaysia
*abdkadir@uitm.edu.my, abdulkhabir@uitm.edu.my

Abstract: The primary advantage of online food delivery lies in its capacity to provide convenient access to food anytime and anywhere, addressing the needs of today’s fast-paced lifestyles. However, within the realm of "Online food delivery systems," a discernible research gap exists. This study aims to address this gap by offering a comprehensive bibliometric overview, shedding light on the current research landscape. Understanding this field’s nuances is crucial for refining business strategies and advancing scholarly knowledge. Through a meticulous review of 255 publications spanning 2000 to 2022 and employing techniques such as keyword co-occurrence and co-authorship analysis, the study identifies influential authors, noteworthy journals, and emerging trends. This not only enriches academic discourse but also encourages collaboration and uncovers global research patterns. The insights gleaned from this study serve as a foundational cornerstone, deepening our understanding of the complexities inherent in online food delivery. By elucidating the existing body of knowledge, this research contributes significantly to the broader comprehension of this domain. Its impact resonates beyond academia, resonating with industries, policymakers, and consumers. It facilitates informed decision-making, ignites innovation, and aids in the formulation of effective strategies. In an era characterized by the rapid digital transformation of consumer behaviors, this research assumes a pivotal role in guiding the evolution of food delivery services. It aligns these services with the dynamic preferences and lifestyles of individuals, ensuring their continued relevance and effectiveness.

Keywords: Bibliometric, Online Food Delivery, Visualization Analysis.

1. Introduction and Background

The continuous evolution of internet technology has instigated transformative shifts in the way consumers lead their lives, giving rise to a surge in online shopping activities (Ali et al., 2021). Technological advancements have also exerted a substantial influence in completely overhauling the landscape of food delivery services, transitioning from conventional phone-based systems to streamlined online ordering mechanisms, all aimed at effectively catering to the ever-fluctuating preferences of consumers. This paradigm shift has propelled these services to ascend to the zenith of consumer satisfaction and convenience (P & Vivek, 2019). Within the contemporary milieu characterized by the "new normal," the online food delivery service (OFDS) has emerged as a prominent player in the dynamic gig economy, reflecting the latest trends of the era (Ahmad Nizar & Zainal Abidin, 2021).

The emergence of the Online Food Delivery Services (OFDS) sector is deemed as a novel avenue within the culinary domain, strategically aimed at garnering augmented sales and expanded market shares. This transformative emergence has notably intensified the competitive landscape among participants within the online food delivery services arena, fueling a fervent drive toward enhanced excellence (Yusra & Agus, 2018). Emanating from the heart of the vibrant food and beverage sector in Malaysia, a nascent wave has emerged, characterized by the rise of online food delivery services. This phenomenon transcends the conventional boundaries of mere take-away and dine-in experiences, encapsulating an innovative facet where virtual food ordering becomes tantamount to dining out. The catalyst behind the ascension of online food delivery services is attributed to the dynamic shifts observed in the preferences and behaviors of urban consumers, emblematic of the evolving urban lifestyle (Chai & Yat, 2019).

In the global market scenario, the Online Food Delivery sector is forecasted to achieve a revenue milestone of approximately US$323.30 billion by the year 2022, with a projected compounded annual growth rate (CAGR 2022-2027) of about 7.60%. This trajectory is anticipated to culminate in a substantial market size of roughly US$466.20 billion by 2027 (Statista.com, 2021). Concurrently, within the context of the Malaysian market, the Online Food Delivery segment is poised to attain revenue of around US$312.20 million by 2022, envisaging a subsequent yearly growth rate (CAGR 2022-2027) of about 9.36%. This evolution is anticipated to lead to a
A noteworthy market volume of approximately US$488.30 million by 2027 (Statista, 2022). In the present era of the online food delivery sector, a conspicuous pattern emerges, highlighting the emergence of no less than seven distinct trends within the realm of Online Food Delivery. These trends collectively contribute to enhancing the realm of digital ordering, introducing novel dimensions that augment customer experiences. These pioneering trends encompass the realms of contactless delivery, delivery facilitated by drones, the ascent of eco-conscious food delivery practices, the innovative concept of food delivery originating from cloud kitchens, the advent of autonomous food delivery mechanisms, the collaborative approach of crowd-sourced food delivery, and the surging prominence of the hyper-localized food delivery trend (M, 2022).

However, it is important to bear in mind that the Online Food Delivery sector is not exempt from encountering a range of challenges. Illustratively, in the context of Malaysia, prominent P-hailing entities such as FoodPanda Malaysia Sdn. Bhd. and Grab Malaysia are presently confronted with a distinctive situation. The Domestic Trade and Consumer Affairs Ministry (KPDNHEP) has proffered a stipulated timeframe of fourteen days, urging these influential industry players to furnish meticulously crafted proposals and all-encompassing strategies aimed at the enhancement of their service provisions (Hani, 2021).

Criticism directed towards Online Food Delivery has become a prevalent phenomenon in recent times, manifesting through diverse TikTok posts and concerted campaigns urging a boycott of select service providers, voiced by vendors, riders, and customers alike. A persistent and unresolved concern revolves around the imposition of exorbitant commission charges on restaurants, coupled with the strain endured by overworked riders and an obscure, convoluted charging policy. Primarily impacting small and medium enterprises, these issues underscore the sector’s challenges.

Nevertheless, the Online Food Delivery realm stands as a noteworthy alternative, propelled by disruptive technology that ushers in employment opportunities within the gig economy’s flexible framework. However, several stumbling blocks persist, necessitating dedicated efforts for resolution. Notably, the impact extends beyond the economic sphere, reverberating within social dynamics. It molds the consumer-food relationship, leaving an imprint on public health outcomes and traffic systems. Furthermore, environmentally, the sector generates substantial waste and exhibits a pronounced carbon footprint.

In charting a path forward, stakeholders hold the responsibility of meticulously weighing the negative repercussions and fostering positive outcomes engendered by Online Food Delivery, ensuring its holistic sustainability (Li et al., 2020). It’s imperative to recognize that these issues are not exclusive to Malaysia; similar challenges have surfaced in other countries as well. Given the confluence of market potential, contemporary trends, and prevailing issues, it becomes evident that a comprehensive exploration of the online food delivery industry is imperative.

2. Literature Review

Online Food Delivery Services (OFDS) encompass the process whereby food, initially selected and requested through digital platforms, is meticulously prepared and subsequently dispatched to meet the consumer’s desired mealtime (Ahmad Nizar & Zainal Abidin, 2021). OFDS streamlines the culinary acquisition journey, serving as a straightforward and user-friendly avenue through which patrons can secure delectable sustenance without necessitating time expenditure within a physical restaurant setting. This adept system empowers the customer to conveniently place orders via dedicated websites or intuitive applications, paving the way for doorstep delivery. The financial aspect harmoniously integrates with this seamless process, enabling online payments utilizing debit cards, credit cards, and analogous electronic modes. This modus operandi is distinguished by its convenience, security, and reliability, heralding a transformative wave that reverberates throughout the contemporary restaurant landscape (Krishna Kumari, 2019).

OFDS occupies a significant niche within the spectrum of the food supply chain, standing as the conclusive juncture immediately preceding the culinary fare's final presentation to its eagerly awaiting consumers (Ahmad Nizar & Zainal Abidin, 2021).
In the context of the novel circumstances brought about by the COVID-19 pandemic, Online Food Delivery Services (OFDS) have been widely embraced as a prominent response (Prasetyo et al., 2021). Diving into bibliometric inquiry emerges as a critical and focal domain for scholarly exploration. Throughout history, bibliometric methodologies have served as indispensable instruments; uncovering intricate interconnections embedded within academic journal citations. This encompassing suite of techniques is meticulously wielded to scrutinize, quantify, and evaluate textual and informational content. Across various research disciplines, the deployment of bibliometric methodologies stands as a vehicle for comprehending the reverberations within a specific field, assessing the collective influence of researchers, or unraveling the impact forged by individual scholarly contributions (Coello, 2012).

As espoused by Zhang & Zhang (2021), bibliometrics stands as an exacting quantitative analysis approach, underpinned by mathematical and statistical tools. Strategically employed, it presents a formidable means of quantifying intricate interplays and the far-reaching repercussions nestled within publications within the contours of a defined realm of research.

3. Research Methodology

To delve more comprehensively into the evolution of the Online Food Delivery Services (OFDS) study, a bibliometric analysis was effectively employed. The principal motivation behind embarking on this bibliometric analysis resides in its capacity to meticulously investigate bibliographic content. This methodological approach serves a multi-fold purpose: to discern the predominant scientific trajectories within the realm, to unveil the intricate interconnections that bind them together, and to fathom the nuanced strengths and limitations inherent within these scholarly endeavors. Furthermore, the application of bibliometric analysis proves instrumental in identifying existing voids within the panorama of scientific research, thereby aptly delineating pathways for future explorations and investigations (Saheer et al, 2021).

The bibliometric investigation delineated in this paper encompassed a comprehensive process comprising seven distinct stages. The overarching objective was to amass a robust dataset within the domain of "Online Food Delivery," as depicted in Figure 1. The process of data accumulation hinged upon a strategically chosen set of keywords: "Online," "Food," and "Delivery." Consequently, this meticulous keyword-based approach yielded a curated selection of 255 pertinent articles, earmarked for subsequent and in-depth scholarly exploration and analysis.
4. Results

The distribution pattern of scientific papers across different years is visually presented in Figure 3. As per the illustration, the initial publications trace back to the year 2000, with a notable upsurge in activity observed post-2000. The trajectory of publication trends can be delineated into three distinct phases. The first phase, spanning 2000 to 2015, reflected a modest volume of studies, numbering less than 10 per annum. Subsequently, during the second phase spanning 2016 to 2019, the frequency of studies experienced moderate growth, yet remained below 20 annually. The third and final phase, encompassing the years 2020 through 2022, showcased a noteworthy escalation, with the publication count progressing from 37 to 76. This discernible pattern underscores a consistent upward trajectory, culminating in a significant pinnacle in 2022. Further analysis of Figure 3 unveils a noteworthy trend: a substantial majority, exceeding 90%, of the studies were published within the last decade, accounting for 238 out of the total 255 publications.

Figure 3: Total Number of Publications between 2000 and 2022 (based on Scopus Database)
Alterations in publication trends are plausibly influenced by the burgeoning demand and expansion of the food delivery market. This surge in market dynamics has concurrently ignited a heightened curiosity among researchers, propelling a surge in scholarly exploration within the industry’s domain. Another contributing factor is the evolution of the industry's structural landscape. Whereas earlier renditions of online food delivery were confined to solitary eateries or menu selections, the contemporary landscape represents a virtual smorgasbord, allowing patrons to peruse through a myriad of restaurants and a vast array of dishes, emblematic of a substantial transformation (Singh, 2019).

The remarkable surge in publications about online food delivery undoubtedly finds its roots in the exponential demand for such services triggered by the onset of the COVID-19 pandemic in 2020. This surge in demand has, in turn, beckoned a heightened interest from researchers, prompting a closer scrutiny of the industry. The impetus behind this heightened focus lies in the role of food delivery services as a crucial lifeline for numerous retail ventures, particularly those in the food and beverage sector, during these unprecedented times. As an illustrative case, in Malaysia, the constraints imposed by the COVID-19 pandemic led to a situation where individuals found themselves confined within their homes. This confinement necessitated the delivery of a myriad of essentials ranging from sustenance and groceries to laundry and online purchases. Notably, Grab Malaysia, for instance, has seen a substantial 30% surge in demand for its services since the initiation of movement control orders on March 18, 2020, effectively attesting to the transformative impact of the pandemic on the realm of food delivery and related services.

From a global standpoint, as highlighted in a CNN Business report, the outset of 2020 seemed to portend a pivotal moment for the food delivery industry, poised on the precipice of a significant reevaluation after years marked by substantial fundraising and subsequent losses. The convergence of the health crisis and economic turbulence fashioned a unique confluence of challenges for delivery companies. This scenario was characterized by an extensive pool of freshly jobless individuals seeking avenues of employment, a multitude of individuals confined to their residences and opting for delivered sustenance, and a surging reliance on takeaway and delivery services by restaurants (Sara Ashley O'Brien, 2020).

<table>
<thead>
<tr>
<th>Total Citation</th>
<th>Author</th>
<th>Article title</th>
<th>Journal/Year of Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>493</td>
<td>Hobbs (2020)</td>
<td>Food supply chains during the COVID-19 pandemic</td>
<td>Canadian Journal of Agricultural Economics 68(2), 171-176</td>
</tr>
<tr>
<td>316</td>
<td>Yeo, Goh &amp; Rezaei (2017)</td>
<td>Consumer experiences, attitudes and behavioral intention toward online food delivery (OFD) services</td>
<td>Journal of Retailing and Consumer Services 35, 150-162</td>
</tr>
<tr>
<td>112</td>
<td>Kapoor &amp; Vij (2018)</td>
<td>Technology at the dinner table: Ordering food online through mobile apps</td>
<td>Journal of Retailing and Consumer Services 43, 342-351</td>
</tr>
<tr>
<td>76</td>
<td>Pigatto, Machado,</td>
<td>Have you chosen your request? Analysis of</td>
<td>British Food Journal</td>
</tr>
</tbody>
</table>
Presented in Table 1 above are the top 10 studies with the highest citations in the realm of Online Food Delivery Services (OFDS) spanning the years 2000 to 2022. Standing prominently as the most cited article, with a remarkable 493 citations, is the work titled "Food supply chains during the COVID-19 pandemic," authored by Jill E. Hobbs (Hobbs, 2020). This scholarly endeavor offers an early evaluation of the ramifications wrought by the COVID-19 pandemic on food supply chains and their inherent resilience.

This paper talks about what happens when things change on the side of people wanting to buy food. It looks at how this kind of change can affect the way food gets to the stores. The paper also looks at different things that could cause problems in getting food to the stores. These problems could be not enough people to work, issues with getting food from one place to another, and things that make it hard for food to go between Canada and the U.S.

Finishing off by looking ahead, the study thinks about what will keep happening because of the COVID-19 pandemic to the way food gets to the stores. It looks at how more and more people might start using online grocery delivery, and how people might start to like getting their food from nearby places.

Securing the second position is the study titled "Consumer Experiences, attitude and behavioral intention toward online food delivery (OFD) Services," authored by Vincent Cheow Sean Yeo, See-Kwong Goh, and Sajad Rezaei (Yeo et al., 2017), garnering an impressive 316 citations. This scholarly work delves into an exploration of the intricate dynamics between consumer experiences, attitudes, and behavioral intentions concerning online food delivery (OFD) services.

In the second spot, there’s a study called "What People Think and Do about Ordering Food Online," written by Vincent Cheow Sean Yeo, See-Kwong Goh, and Sajad Rezaei in 2017 (Yeo et al., 2017), this study has gotten 316 mentions, which is pretty amazing. It looks closely at how people feel and what they do when they order food online.

This paper is all about carefully looking at how different things are connected. These things include why people find it easy, how useful they think it is after they’ve used it, if they enjoy using it if they’re trying to save money, if they’re trying to save time, if they've bought things online before, what they think about it, and what they plan to do next with online food ordering. The researchers made a big plan that brings all these ideas together, using a Contingency Framework and the Extended Model of IT Continuance.

Claiming the third position is an investigation conducted by Arghya Raya, Amandeep Dhir, Pradip Kumar Bala, and Puneet Kaur (Ray et al., 2019). This scholarly inquiry centers around the development of a meticulously validated and dependable instrument, designed to gauge the diverse uses and gratifications (U&G) that underlie the utilization of Food Delivery Apps (FDAs). Furthermore, the research delves into an analysis of the correlations existing between various dimensions of U&Gs and the subsequent intentions concerning the adoption and utilization of FDAs.
At number three, we have a study done by Arghya Raya, Amandeep Dhir, Pradip Kumar Bala, and Puneet Kaur in 2019 (Ray et al., 2019). This study is all about making a very careful tool to measure different reasons why people use Food Delivery Apps (FDAs) and why they like using them. The researchers also looked at how these reasons are connected to what people plan to do with these apps in the future.

Notably, it is worth acknowledging that Amandeep Dhir and Puneet Kaur, who co-authored the third and eighth articles respectively, feature prominently among the top 10 prolific authors in this domain, as depicted in Table 2. The frequency of their authorship appearances, as extracted from Scopus data, is meticulously outlined within the confines of Table 2. Upon closer scrutiny of the table, a discernible pattern emerges, underscoring Amandeep Dhir, Puneet Kaur, and Pradip Kumar Bala as the foremost contributors to this research sphere.

**Table 2:** The Number of Published Articles by Top 10 Contributing Authors and Top 10 Journals in the Area of “Online Food Delivery” between 2000 and 2022 (based on Scopus Database)

<table>
<thead>
<tr>
<th>Author</th>
<th>Number of published articles</th>
<th>Journal</th>
<th>Number of published articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dhir, A.</td>
<td>4</td>
<td>British Food Journal</td>
<td>19</td>
</tr>
<tr>
<td>Kaur, P.</td>
<td>4</td>
<td>International Journal Of Hospitality Management</td>
<td>14</td>
</tr>
<tr>
<td>Bala, P.K.</td>
<td>3</td>
<td>Journal Of Foodservice Business Research</td>
<td>13</td>
</tr>
<tr>
<td>Correa, J.C.</td>
<td>3</td>
<td>Nutrients</td>
<td>11</td>
</tr>
<tr>
<td>Hobbs, J.E.</td>
<td>3</td>
<td>International Journal Of Contemporary Hospitality Management</td>
<td>10</td>
</tr>
<tr>
<td>Ray, A.</td>
<td>3</td>
<td>Journal Of Retailing And Consumer Services</td>
<td>9</td>
</tr>
<tr>
<td>Soon, J.M.</td>
<td>3</td>
<td>Food Control</td>
<td>5</td>
</tr>
<tr>
<td>Talwar, S.</td>
<td>3</td>
<td>Science Of The Total Environment</td>
<td>5</td>
</tr>
<tr>
<td>Abdul Wahab, I.R.</td>
<td>2</td>
<td>Appetite</td>
<td>4</td>
</tr>
<tr>
<td>Amaral, C.A.A.</td>
<td>2</td>
<td>Frontiers In Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

Looking at the chart in Figure 3 that shows the countries where these articles were published, we can see that the United States has the most articles about online food delivery, with 60 in total. India and China come next, with 38 and 26 articles respectively. Malaysia is in fifth place, having published 18 articles. Among the top 10 countries, Taiwan has the fewest articles, with only 12.

**Figure 3:** Top 10 Publication by Country in Online Food Delivery Area (based on Scopus database)

The primary cause is attributed to the substantial forecasted income for each country, as detailed in the table provided by statista.com below:
Table 3: The Projected Revenues in Online Food Delivery for Each Country, As Reported on Statista.com and Shown in the Table Below:

<table>
<thead>
<tr>
<th>Country</th>
<th>Projected Revenue in 2022 ($ millions)</th>
<th>Annual growth rate 2022 - 2027</th>
<th>Projected market volume by 2027 ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>63,020</td>
<td>8.90%</td>
<td>96,500</td>
</tr>
<tr>
<td>China</td>
<td>58,700</td>
<td>12.1%</td>
<td>118,500</td>
</tr>
<tr>
<td>India</td>
<td>12,140</td>
<td>10.80%</td>
<td>20,270</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>15,800</td>
<td>9.13%</td>
<td>24,460</td>
</tr>
<tr>
<td>Malaysia</td>
<td>312.2</td>
<td>9.36%</td>
<td>488.3</td>
</tr>
</tbody>
</table>

Co-Occurrence Analysis: The following examination employs Co-occurrence analysis using VOSviewer software. The visual representation of the most frequently used keywords can be observed in Figure 4. The size of keywords corresponds to their frequency within the study. This data is valuable for identifying recent keywords that have been prevalent. Similar colors indicate close relationships between keywords. The primary keyword of focus is "Online Food Delivery," as determined by VOSviewer analysis of all cited papers. This exploration generated additional keywords, including "pandemic," "performance," "China," "Indonesia," and "service quality." As a result of this analysis, we deduced that this field of study is gaining prominence. However, most prior research has concentrated on the highlighted terms, revealing the need to explore other aspects for a more comprehensive understanding. Areas such as operations, marketing, Halal online delivery, and others present opportunities for further enhancing our grasp of this topic.

Figure 4: Co-Occurrence Analysis in VOSviewer

Figure 05

5. Conclusion

The paper employs the bibliometric analysis method to outline and examine the subject of online food
delivery. Utilizing a comprehensive sample of 255 papers, it reveals a notable surge in publications since the year 2018. We can conclude that the study’s findings can be succinctly summarized in seven key insights, which collectively unveil a dynamic research landscape within the domain of online food delivery systems, characterized by a trajectory of steady growth and the continuous evolution of thematic explorations. This investigation successfully identifies influential authors and journals, effectively shedding light on the collaborative networks that underpin the academic discourse and geographic trends that shape research activity.

Employing the powerful methodology of keyword co-occurrence analysis, the study effectively illuminates emerging research themes, adding depth to the understanding of the multifaceted nature of the online food delivery systems domain. This approach is further complemented by the observation and characterization of distinct research clusters, offering a visual representation of interconnected domains of investigation, and fostering a comprehensive understanding of the field’s complexity.

In addition to these insights, the study also provides a valuable window into the temporal progression of research interests over time, thereby enabling an appreciation of how the focus of academic inquiry within the realm of online food delivery systems has evolved. Furthermore, the potential identification of previously unexplored areas in the field opens avenues for future research endeavors.

In summation, these diverse findings collectively construct a comprehensive panorama of the advancement of research in online food delivery systems. Beyond academia, these insights hold the potential to act as a guiding compass for scholars, industry stakeholders, and policymakers alike. This guidance is instrumental in navigating the multifaceted challenges and opportunities inherent in the online food delivery landscape, thus facilitating meaningful contributions to the ongoing advancement of this rapidly evolving sector. The synthesis of these insights forms a critical foundation for building upon the existing body of knowledge and shaping the trajectory of this dynamic field in the years to come.

References


Trend


