IJASC 23-4-43

Comparative Analysis of the Status of Restaurant Start-ups Before and After the Lifting of Social Distancing Through Big Data Analysis

Jong-Hyun Park*, Yang-Ja Bae**, Jun-Ho Park***, Gi-Hwan Ryu****

Department of Immersive Content Convergence, Graduate School of Kwangwoon University, Seoul, Korea*
Department of Immersive Content Convergence, Graduate School of Kwangwoon University, Seoul, Korea**
Department of Tourism and Food Industry , Graduate School of Smart Convergence, Kwangwoon University, Seoul, Korea***
Professor, Department of Tourism and Food Industry , Graduate School of Smart Convergence, Kwangwoon University, Seoul, Korea****

{goodmento, yj93652, junho1257, allryu} @kw.ac.kr

Abstract

This paper explores notable shifts in the restaurant startup market following the lifting of social distancing measures. Key trends identified include an escalated interest in startups, a heightened focus on the quality and diversity of food, a relative decline in the importance of delivery services, and a growing interest in specific industry sectors. The study's data collection spanned three years, from April 2021 to May 2023, encompassing the period before and after social distancing. Data were sourced from a range of online platforms, including blogs, news sites, cafes, web documents, and intellectual forums, provided by Naver, Daum, and Google. From this collected data, the top 50 words were identified through a refinement process. The analysis was structured around the social distancing application period, comparing data from April 2021 to April 2022 with data from May 2022 to May 2023. These observed trend changes provide founders with valuable insights to seize new market opportunities and formulate effective startup strategies. In summary, We offer crucial insights for founders, enabling them to comprehend the evolving dynamics in food service startups and to adapt their strategies to the current market environment.

Keywords: Covid-19, Social Distancing, Restaurant -Start Up, Big Data

1. Introduction

Since its onset in late 2019, COVID-19 has significantly impacted economies and societies worldwide [1]. The pandemic, characterized by social distancing measures, has notably affected the foodservice industry. As gatherings were limited and operating hours restricted, these service-based businesses faced direct losses. Inevitable shifts towards remote work and school closures dramatically reduced the demand for face-to-face services, posing a significant challenge for an industry reliant on physical interactions. With restrictions on social gatherings, the frequency of dining out substantially declined. Remote work, school closures, and prohibitory orders altered everyday behavior, subsequently impacting food culture. As home dining increased and the use of delivery services surged, the foodservice sector was compelled to seek new breakthroughs. However, these challenging times eventually passed, and with the easing of government pandemic policies, the industry began to revive. With the spread of the virus declining, the government, according to a press release from the Ministry of Health and Welfare dated April 15, 2022, lifted social distancing measures after approximately two years and a month [2]. This shift reignited public interest in the foodservice industry, evident in the increased preference for foodservice businesses at a franchise expo held in March 2022, as mentioned in a column by Lee Ho in Women's Consumer Newspaper. In this context, consumer interest in foodservice entrepreneurship is expected to continue rising [3]. This thesis conducts a big data analysis focusing on search frequencies on Korea's leading social networks - Naver, Google, and Daum. By designating "foodservice entrepreneurship" as a keyword, the study compares search frequencies from April 2021 to April 2022 (prior to the lifting of social distancing) with those from May 2022 to May 2023 (post-lifting). Ultimately, the thesis aims to analyze the change in prospective entrepreneurs' interest in foodservice entrepreneurship following the cessation of social distancing measures, thereby assessing how consumer interest in this sector has increased in the post-pandemic era.

2. Theory

2.1 Big Data

The term "big data" gained prominence following its introduction in "The Data Deluge," a report published by The Economist in 2010 [4]. Initially referring to the massive amounts of unstructured data, the scope of big data has since expanded to encompass technologies and methodologies for processing and analyzing complexly accumulated data [5]. Big data is characterized by three fundamental attributes: 'Volume,' 'Velocity,' and 'Variety.' 'Volume' denotes the sheer amount of data, 'Velocity' indicates the speed at which data is generated and processed, and 'Variety' describes the diverse types and sources of data. These characteristics highlight that big data introduces challenges beyond the capabilities of conventional database management systems and methods. Furthermore, big data is also defined by two additional dimensions: 'Veracity' and 'Value.' 'Veracity' underscores the trustworthiness and precision of the data, while 'Value' focuses on the ability to glean useful insights from the data [6]. Understanding these dimensions of big data is vital for organizations and businesses, as it assists in effective data management, analysis, and thereby facilitates enhanced decision-making, opportunity discovery, and business model innovation.

2.2 Social Distancing

Maintaining a physical separation from others, commonly known as social distancing, is a critical strategy in controlling the spread of infectious diseases like COVID-19. This practice is primarily aimed at minimizing

widespread community infections and is a well-established principle in the realm of public health [7]. The effectiveness and limitations of social distancing are still subjects of ongoing research. It's acknowledged that through social distancing, the rate of infections can be curtailed and the burden on healthcare facilities can be alleviated. However, this approach is not without its drawbacks; it can hamper economic activities and potentially lead to significant mental health issues. Numerous studies have been conducted to evaluate the benefits and drawbacks of social distancing measures. These investigations have generally found that different social distancing protocols adopted across countries have been instrumental in lowering infection rates. Additionally, evidence suggests a corresponding decrease in healthcare system strain. Despite these benefits, it's important to recognize the ancillary challenges these policies pose beyond their immediate health impacts [8].

2.3 Restaurant Start Up

The foodservice industry, satisfying a fundamental human need, has established itself as a key service sector increasingly vital to national economies alongside economic development. The term 'foodservice industry' has become widely used as the industrialization of dining out began to be recognized as a revenue-generating business sector. This industry plays a crucial role by providing various forms of food services, creating economic value, and meeting social needs [9].

Previously known as the restaurant business, catering business, or food business, this sector is now collectively referred to as the foodservice industry, which has seen specialization and prosperity in modern times. The word 'restaurant' originated from the French word 'De Restaurer' in 1765, meaning to restore or rejuvenate one's strength and spirit. This term evolved to 'Restaurant' around 1794 in the United States and is currently used to denote establishments providing meals or beverages to the general public.

From an academic perspective, the definition of entrepreneurship varies among scholars. Generally, entrepreneurship refers to the process of creating a new organization, aimed at profit-making and establishing a new form of organization that did not previously exist. One of the most widely accepted concepts related to this is entrepreneurial spirit, which plays a significant role in understanding phenomena related to entrepreneurship [10].

3. Experiments

3.1 Purpose of Research

The objective of this study is to examine and analyze the changes in keywords related to foodservice entrepreneurship before and after the lifting of social distancing measures, using 'foodservice entrepreneurship' as the central keyword. Furthermore, this research aims to identify and define key keywords related to foodservice entrepreneurship by examining an integrated set of keywords, focusing on those that prospective entrepreneurs are interested in and frequently search for. This process intends to verify whether there is a correlation between the keywords derived and those generated through big data analysis pertaining to foodservice entrepreneurship. In essence, this study conducts an exploratory analysis of the words related to foodservice entrepreneurship formed based on search frequencies on prominent social media and search platforms in Korea, such as Naver, Daum, and Google, analyzing their interrelations. Additionally, the study

seeks to derive a social science model by examining research models related to clusters in foodservice entrepreneurship.

3.2 Research Methods

In this study, rather than employing conventional strategic research methods of social science models, such as surveys, we applied a text mining approach, a structured analysis method within big data analytics, to research the foodservice entrepreneurship image. For this purpose, TEXTOM was utilized as a data collection and analysis tool to extract data related to foodservice entrepreneurship. The data collection period spanned three years, from April 2021 to May 2023, encompassing the time before and after social distancing measures. Texts extracted from blogs, news, cafes, web documents, and knowledge-sharing platforms provided by Naver, Daum, and Google, centering around the keyword 'foodservice entrepreneurship,' were collected. The data underwent a cleansing process, from which the top 50 words were derived. A comparative analysis was conducted on data from April 2021 to April 2022, during the application of social distancing, and from May 2022 to May 2023, after the relaxation of these measures. Thus, the study defined the period from April 2021 to April 2022 as the social distancing phase and May 2022 to May 2023 as post-social distancing for the analysis.

  The research process involved: first, extracting relevant text data centered on the keyword 'foodservice entrepreneurship' from social networks such as Naver, Daum, and Google. Second, performing data cleansing and morphological analysis using TEXTOM for big data analysis. Third, visualizing words related to foodservice entrepreneurship using the data visualization program UCINET. Fourth, presenting a social science model based on clusters identified through CONCOR analysis.

4. Results

4.1 Words Frequency Analysis

  Table 1 shows word frequency during social distancing. This study compared keyword frequencies related to foodservice entrepreneurship before and after the lifting of social distancing. Notably, 'Entrepreneurship' maintained the highest frequency, slightly increasing (13919 to 14597), indicating sustained interest in entrepreneurship among potential entrepreneurs. The 'Foodservice' keyword also saw an increase (8690 to 9316). The slight decrease in 'Youth' (3527 to 3142) still suggests young entrepreneurs as key drivers in the industry. The increase in 'Franchise' (2694 to 3876) reflects the attractiveness of franchise models as stable entrepreneurial paths.

Table 1. Word frequency during social distancing

WORD	FREQUENCY	WORD	FREQUENCY	WORD	FREQUENCY
Entrepreneurship	13919	Development	1189	Sales	668
Foodservice	8690	Consulting	1097	Revenue	664
Foodservice Entrepreneurship	4044	Store	1091	Restaurant	651
Youth	3527	News	858	Foodservice Industry	645
Menu	3090	Market	856	Franchise Store	640

Word	Frequency	Word	Frequency	Word	Frequency
Support	2929	Item	837	Restaurant	607
Franchise	2694	Marketing	815	Business Type	601
Operation	2453	Recipe	801	Cooking	576
Education	2197	Company	793	Small Capital	572
Brand	2171	Open	785	Trend	559
Business	1869	Expert	780	Cooking	559
Specialty Store	1729	Café	776	Dish	556
Representative	1501	Shared Kitchen	738	Journalist	547
Entrepreneur	1342	Service	736	Incubating	545
Delivery	1339	Corona	722	Gourmet Restaurant	539
Handover	1299	Employment	714	Online	529
Success	1284	Program	708		

Table 2 shows word frequency after social distancing. Post-social distancing, new keywords like 'Expo', 'Information', 'Investment', 'Platform', and 'Chicken' emerged, indicating growing interest in new business opportunities. The absence of 'Shared Kitchen', 'Corona', and 'Online' from the top 50 keywords suggests a return to normalcy post-pandemic. The decrease in 'Delivery' (815 to 697) indicates a shift towards more in-person dining, highlighting the importance of enhancing in-store service quality.

Table 2. Word frequency after social distancing

WORD	FREQUENCY	WORD	FREQUENCY	WORD	FREQUENCY
Entrepreneurship	14597	Consulting	1082	Marketing	697
Foodservice	9316	Item	976	Investment	693
Franchise	3876	Expo	914	Merchandise	691
Foodservice Entrepreneurship	3305	Franchise Store	906	Trend	685
Youth	3142	Open	887	Product	684
Education	2620	Company	861	Employment	678
Operation	2560	Delivery	834	Revenue	675
Support	2520	Market	831	Cafe	670
Brand	2318	Development	816	Recommendation	653
Business	1792	Company	811	Food	634

Success	1676	Restaurant	799	News	610
Handover	1531	Field	772	Cost	596
Representative	1485	Expert	755	Platform	571
Menu	1459	Program	751	Business Type	531
Specialty Store	1423	Service	716	Chicken	433
Store	1192	Information	708	Incubating	431
Entrepreneur	1141	Gourmet Restaurant	706		

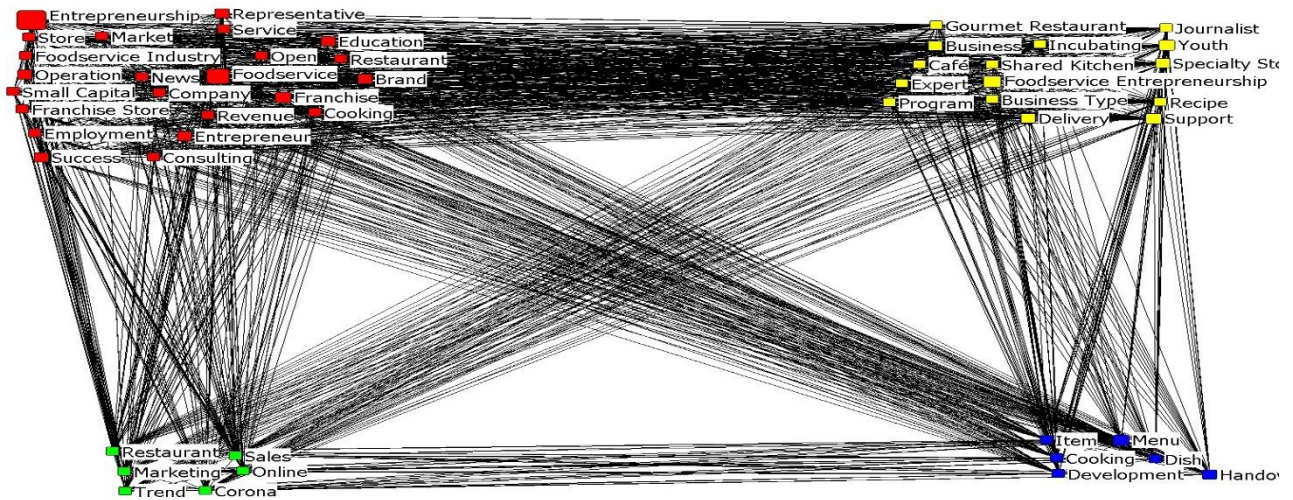## 4.2 Concor Analysis

Figure 1. Visualization of a restaurant startup CONCOR before the lifting of social distancing (21.04 – 22.04)
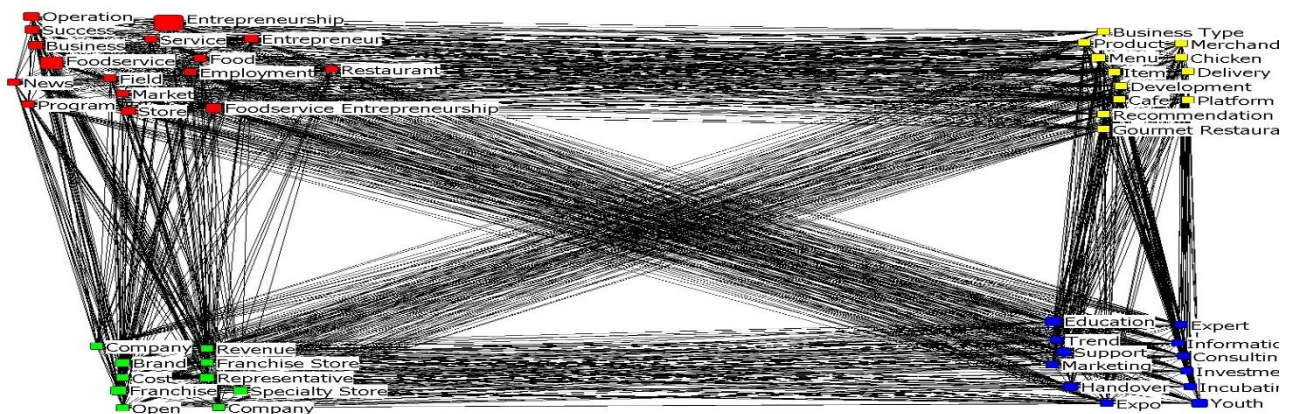

Figure 2. Visualization of a restaurant startup CONCOR after the lifting of social distancing (22.05 – 23.05)

In this research, the CONCOR (Convergence of Iterated Correlations) analysis was employed to understand the network structure among keywords. CONCOR analysis is a blockmodeling technique that identifies structurally similar node groups within complex network data, based on patterns and connections of nodes. This methodology iteratively calculates correlations between nodes, grouping those with high correlations into the same cluster. As evident in Figures 1. and 2., the results of CONCOR analysis formed four clusters both before and after the lifting of social distancing measures. Given the significant connections between keywords in each cluster, pre-social distancing CONCOR analysis results categorized Cluster 1 as 'Foodservice Industry', Cluster 2 as 'Types of Entrepreneurship', Cluster 3 as 'External Factors', and Cluster 4 as 'Menu Selection'. Post-social distancing, Cluster 1 was again 'Foodservice Industry', Cluster 2 as 'Entrepreneurship Business Types', Cluster 3 as 'Franchise', and Cluster 4 as 'Forms of Entrepreneurship'.

5. Conclusion

This study examined the shifts in food service startup trends before and after the implementation of social distancing, utilizing big data analysis through Textom. The objective was to understand evolving startup strategies, differentiation tactics, and trends in the food service industry in the context of lifted social distancing measures. Analysis of word frequency post-lifting of social distancing indicates a heightened interest in entrepreneurship, with a growing focus on food quality and diversity. A relative decrease in the importance of delivery services was observed, alongside an increased interest in specific sectors. Notably, post-social distancing, consumers exhibited less sensitivity to COVID-19.

These insights provide foundational data for identifying emerging trends and opportunities in the restaurant startup market. Additionally, the study employed CONCOR analysis to discern clustering and interconnectivity among keywords, extending beyond mere frequency analysis.

The implications of this study are multifaceted. Firstly, the sustained interest in restaurant startups post-social distancing highlights entrepreneurs' identification of novel business opportunities. However, the increased customer expectations regarding food quality and diversity necessitate deeper consideration in business planning. Entrepreneurs must strategize not only around menu development and service provision but also in meeting customer demands for quality and variety.

While the significance of delivery services has relatively waned, their necessity remains, indicating the industry's overall recovery and the establishment of delivery as a new consumption pattern. Hence, entrepreneurs should focus on enhancing the in-restaurant experience while sustaining delivery services.

Finally, the observed reduced consumer sensitivity to COVID-19 post-social distancing suggests the formation of a 'new normal'. Entrepreneurs must adeptly comprehend this shifting environment and consumption patterns to develop flexible business strategies.

In summary, the findings on food service startup trends from this study offer vital insights for entrepreneurs to understand the current market landscape and formulate appropriate strategies. Armed with this knowledge, restaurant entrepreneurs can plan and execute more successful ventures.

References

[1] Heo Yoon-kyung, Kim Sung-hwan, and Lee Tae-hee, "The Ripple Effect and Response Plan of the COVID-19 Crisis in Busan Economy," Special Issue Focus, Seoul: Korea Institute of Construction Industry, 2020.

[2] Kux, Leslie., "Department of Health and Human Services," Food and Drug Administration 2012.

[3] Lee Ho., "Franchise industry, use COVID-19 crisis as an opportunity to grow the foundation," a women's consumer newspaper, June 2022.

[4] Cuckier, K., "Data, data Everywhere. A Special Report on Managing Information," London: The Economist, 2010.

[5] Containing muscle, Chae Seung-byung, "Big Data Change Management - Data Knows the Answer," Seoul: Samsung Economic Research Institute, pp. 36-39, 2012.

[6] Eom, Kyoung Hee and Oh, Rim Kyung , "A Study on the Importance of Fashion Curation Service Design Based on Big Data - Mainly with Korean Male Life Style in Their 30s~40s," Journal of the Korean society design culture, Vol. 23, No. 4, pp. 560-561, 2017.
DOI: https://doi.org10.18208/ksdc.2017.23.4.559

[7] Baker, R.E., Yang, W. and Vecchi, G.A. et al. "Susceptible supply limits the role of climate in the early SARS-CoV-2 pandemic," Science 369, pp. 315–319, 2020.
DOI: https://doi.org/10.1126/science.abc2535

[8] Pierce M., Hope H. and Ford T."Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population," The Lancet Psychiatry, Vol. 7, No.10, pp. 883–892, 2020.
DOI: https://doi.org/10.1016/S2215-0366(20)30308-4

[9] Choi Woong., "A study on the development of an evaluation scale for the introduction of the rating system for domestic and foreign restaurants," Sejong University Ph.D. thesis, pp.8-10, 2002.

[10] Sang Ho Kim and Jin Whan Park, "The Effects of Success Factors for Starting Business in the Food Service Industry on Management Performance," Culinary Science & Hospitality Research, Vol.16, No. 2, pp. 215-231, 2010.
DOI : https://doi.org/10.20878/cshr.2010.16.2.014