

Digital disruption: the hyperlocal delivery and cloud kitchen driven future of food services in post-COVID India

Food services
in post-COVID
India

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Kishore Thomas John

*Department of Management Studies, Indian Institute of Technology Madras,
Chennai, India*

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Abstract

Purpose – The pervasive impact of the COVID-19 virus on the food services sector in India has created conditions for fundamentally altering the structure of the industry. This paper offers a nuanced evaluation of the transfiguration of the market, explaining descriptive views supported by numerous secondary data sources.

Design/methodology/approach – This is a self-driven study grounded in secondary data. Qualitative and quantitative assessments are assimilated from credible market research reports of multiple agencies in the Indian context, as well as news developments during the pandemic period.

Findings – Digitally pivoted platforms such as cloud kitchens and delivery aggregators will eclipse all other formats due to the potential long-term prevalence of the COVID-19 virus. These formats would rise to a dominant position in the Indian food services sector in the coming decade.

Research limitations/implications – This study is entirely driven by secondary data due to the inherent difficulties of collecting sizeable and good quality primary data as a result of the lengthy and stringent lockdowns imposed across India. Future studies should consider collecting consumer responses to get a better picture of changing dining habits in the post-pandemic scenario.

Practical implications – The dynamic and evolving food services in India, catalyzed by the Internet and digital technologies will help academicians study the long-term implications of this change, and how it would impact society at large. The paper provides a rich body of contemporary data and analysis in the food services sphere.

Social implications – The COVID-19 pandemic and its long-term persistence would dramatically alter food service consumption across India. This will not only change how the industry is structured, but will reshape how food is consumed into the future.

Originality/value – The study is a holistic examination of the relationship between the coronavirus pandemic and the food services industry in India. The macro perspectives aided by news coverage and industry research would help generate potential research questions on its own merits.

Keywords Food services sector, Cloud kitchens, Delivery aggregators, food-tech, Digital disruption, Coronavirus, Post-COVID transformation

Paper type Viewpoint

1. Introduction

In the wake of the global spread of COVID-19 virus in March 2020, India imposed one of the world's longest and strictest lockdowns (Purohit and Parmar, 2021). The impact of this action

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was devastating on the economy, with millions driven into poverty, and the economy grinding to a near halt (Agarwal and Bellman, 2020). The Indian restaurant sector, valued at over \$50 billion was forecasted to cut about 1.5 million jobs and suffer \$9 billion in losses, being one of the worst affected sectors in the economy (Ahmed and Roy, 2020). Reports by market research companies and food-tech firms suggested that 40% of the restaurants in the country were permanently closed due to the pandemic with dine-in revenues cut by half (CRISIL Research, 2020a; Zomato, 2020). However, the sector started witnessing the green shoots of recovery following a relaxation of restrictions and the waning of the first wave. Between the months of September 2020 to February 2021, the sector recovered slowly but steadily, with the growth and resumption of food services driven mostly by delivery apps and food aggregators (Ishwar, 2020; Bhalla, 2020). The recovery was aided by the long festive and sports season that extended from September till the year's end. By New Year's Eve, food delivery apps were taking record number of orders as customers increasingly embraced the delivery format (ETTech, 2021a; Ahmed, 2021). The dine-in business saw recovery in numbers only by February 2021 when the effects of the first wave were on the decline (Tandon, 2021a). In March 2021, the Union Health Minister had declared that the worst of the pandemic was over (Biswas, 2021).

The impact of the unexpected and devastating second wave changed all that. With infection rates in India breaking new records every day, the country was once again preparing for the long haul, with fresh lockdowns imposed across states and cities by local authorities (Slater, 2021; Singh, 2021). The government's principal scientific advisor had warned of an imminent third wave, exacerbated by mutant variant strains of the virus (Chirtavanshi, 2021). The ravages of the second wave were borne adversely by the battered food service industry, with restaurants closing down once again amidst new lockdowns in major cities and states (Tandon, 2021b; Ganguly, 2021a; Das, 2021). This development was ruinous considering that restaurants and bars were clamoring for the government to ease restrictions for diners only two months earlier (Bengaluru Bureau, 2021; Sadhu, 2021).

The re-imposition of stringent lockdowns on the food service sector which was making a slow and arduous recovery had put many restaurants in a "ventilator mode", essentially surviving solely on takeaways and food-delivery apps (PTI, 2021; Roy, 2021; Ganguly, 2021b). Published studies by the American CDC had pointed to the risk of spread in restaurants (Explained Desk, 2021; Timesofindia.com, 2020). This suggests that the dine-in sector would survive only in a much diminished mode for as long as the pandemic posed a threat. The coronavirus continues to be an undeniable and persistent problem for India. Its tenacity is expected to bring in disruptive changes in the dining and restaurant industry. This perspective paper examines the likely scenario of how the sector would survive and progress into the foreseeable period and its impact on the industry as well as consumers in India. Specifically, the paper would examine the disruptive effects of cloud kitchens, food-tech apps and the delivery segment, and how they rose from relative obscurity to command a dominant position in India's food services industry.

2. Food services in India: a sector feeling the pangs of disruption

India's food services sector saw its first major growth impetus following the liberalization and opening up of the economy in 1991. Its growth since then has been marked by acceleration and an internationalization of tastes and preferences. This is reflected by the increasing number of international food chains setting up their businesses across the country. Technopak's study titled *Indian Food Services Market* cited in Barbeque Nation Hospitality Limited (2021) had divided the Food Sector's growth story into 3 distinct phases, each spanning a decade beginning in 1991. The specificities of each stage are highlighted in Table 1. The sector witnessed pronounced acceleration and growth toward

| Concentration areas | | Business types | Business model | Key driver | Key challenge |
|---|---|--|---|---|--|
| Transforming India (Introduction) 1991–2000 | Mega metros (2 cities) and mini-metros (6 cities) | International (mainly US) brands and home-grown brands | Complete ownership, or franchising with self-funding | Opening up of Indian economy and end of license-rat era. Accelerated economic growth and rise of the services sector. Growth of the middle class and rapid expansion of metro cities with cosmopolitan cultures | Limited infrastructure and connectivity. Issues of logistics and lack of skilled manpower. Limited market research and lack of availability of consumer data. Culture shock for international brands to Indian food preferences (McDonalds beef controversy) |
| | Ambitious India (Growth) 2001–2010 | Diversification of sector and customer clusters, new brand entries | Franchise and emergence of joint ventures partnerships and public equity, angel investors | Growth of regional cities in state capitals, satellite cities and industrial, commercial and IT hubs. Attraction of foreign investment and international players into India's growth story (India Shining Campaign) | Limited market research and availability of consumer data. Growing but nascent Internet landscape. Adoption of digital technologies. Insularity of India's growing middle class toward new lifestyles. Building the food services sector as a lifestyle choice |
| Digital India (Expansion) 2011–2020 | Emerging lower Tier cities and towns | Expansion of multiple American brands across Indian subcontinent | Joint ventures driven by IPOs and angel investments | Increasing urbanization, accelerated economic growth and an enabling regulatory environment with lifting of restrictions for international players. Rapid proliferation of Internet and mobile telephony | Developing loyal customers in an increasingly crowded market. Digital proliferation. Leveraging CRM initiatives. Market segmentation and diversification. Disruptive effects of food-technology firms |
| | Pan-India expansion and presence | Food-tech aggregator and cloud kitchen driven | Hyperlocal, with partnerships and tie up with local businesses | Expansion of smartphone usage. Growth of cash-less and contact-less payment methods. AI, Machine learning and data mining | Monopolization of digital market. Commoditization of food service. Decline of dine-in formats. Government intervention |

Source(s): Adapted by the author from [Barbeque Nation Hospitality Limited \(2021\)](#)

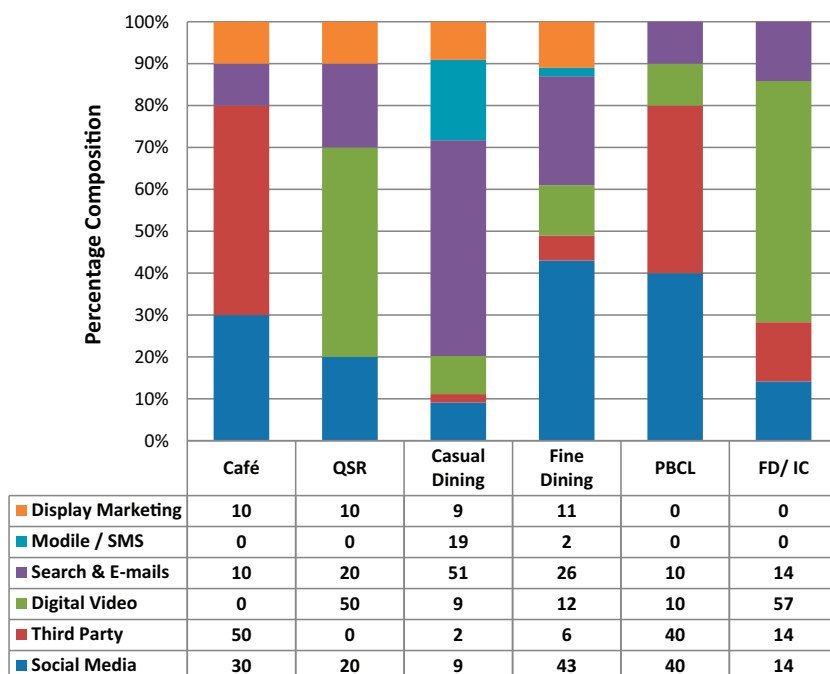
Table 1.
Phase-wise expansion
of India's food services
sector from 1991–2020

Cost-based analysis in 2018 (Table 4) showed that most of the segments were operating with low margins, aggravated by a regulatory system that requires up to 15 different licenses for a restaurant. This was in stark comparison to other Asian countries where licensing regimes are less cumbersome and more business friendly (FICCI-Technopak, 2017). The extent of regulation coupled with low margins were a cause of much distress in the sector, which is typically cash-strapped- having only around 16 cash buffer days (ETCIO, 2020). In effect, the abrupt first lockdown in March 2020 had sounded the death knell for a significant number of restaurants, being unable to resume operations after the restrictions were eased 75 days later. Anurag Katriar, the president of National Restaurant Association of India (NRAI), representing around 500,000 restaurants reflected “*Knowing the high-risk nature of our current business model and the fragility of our profitability were perhaps the biggest lessons*

| Details | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---------------------|-------|------|-------|------|------|------|--------|
| Users (In millions) | 226.3 | 332 | 321.8 | 446 | 560 | 688 | 747.41 |
| Penetration (%) | 18.3 | 27 | 34 | 35 | 38 | 48 | 50 |

Source(s): Compiled from multiple reports from [IBEF \(2021\)](#) and Statista in [Keelery \(2021\)](#)

| Details | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|-------|--------|--------|--------|--------|--------|--------|
| Users (In millions) | 123.3 | 250.66 | 304.51 | 394.82 | 479.34 | 634.58 | 696.07 |
| Source(s): Statista Research Department (2021) | | | | | | | |



Note(s): FD/IC: Frozen Dessert/Ice-Cream, **PBCL:** Pubs, Bars, Café's and Lounges

Source(s): Compiled by the author from (FICCI-Technopak, 2017)

Figure 1.
Spending patterns
among different dining
format in India by
percentage in 2016–17

| | Cafés | QSR | CDR | Fine dining | PBCL |
|---|-------------|-------------|-------------|-------------|-------------|
| <i>Store economics table by food service type</i> | | | | | |
| APC (US \$) (approx value) | 2.00–3.00 | 5.50–8.50 | 8.50–12.00 | >15 | >15 |
| Table turnover | 1.8–2.2 | 1.4–1.6 | 1.7–2.5 | 1.2–1.8 | 1.7–2.0 |
| Avg. store size (Sq. Ft.) | 1,000–1,500 | 1,200–1,500 | 3,000–3,250 | 3,250–3,500 | 3,250–3,500 |
| Avg. CAPEX per store (US \$) | 97K–139K | 139K–208K | 416K–486K | 486K–556K | 416K–486K |
| Avg. sales/day/store (US \$) | 208–277 | 902–972 | NA | NA | NA |
| <i>Store-wise breakup of costs</i> | | | | | |
| CoGS | 40% | 30% | 32% | 32% | 30% |
| Employee costs | 12% | 22% | 18% | 18% | 25% |
| Rent costs | 12% | 11% | 13% | 15% | 15% |
| Outlet expenses | 16% | 15% | 12% | 8% | 10% |
| Outlet EBITDA | 20% | 22% | 25% | 27% | 20% |
| Total revenue | | | 100% | | |

Note(s): Costs calculated in constant 2018 dollars 1 US \$ = approx. 72 INR

APC: Average per Cover, **CoGS:** Cost of Goods Sold. **CAPEX:** Capital Expenditure

EBITDA: Earnings before Interest, Tax, Depreciation and Amortization

QSR: Quick Service Restaurants. **CDR:** Casual Dining Restaurants. **PBCL:** Pubs, Bars, Café's and Lounges

Source(s): Compiled and tabulated by the author from [FICCI-PwC \(2018\)](#)

Table 4.
Approximate store
economics for various
food service segments
in 2018

learned from this pandemic. . .reducing the fixed expenses or converting some of them to a variable is a key requirement for survival under the circumstances” (Bhatia, 2021).

3. The evolving Indian diner

India has a predominantly younger population. It is also the youngest among the BRICS nations with a median age of 28.7 years. Estimates by the CIA in 2020 put 43.82% of the population below 24 years, numbering at over 581 million. A substantial chunk of the population is of the working age. This is enumerated in Table 5.

India’s population and family structure also underwent a structural transformation in the post-millennial period, characterized by rising urbanization, growing number of nuclear families, changing consumer tastes and preferences, higher experimentation in foods, awareness and access to market offerings and a larger proportion of women in the workforce. These changes have been cited by numerous industry analysts (FICCI-Grant Thornton, 2015; FICCI-KPMG, 2016; MoFPI, EY and CII, 2017; FICCI-Technopak, 2017).

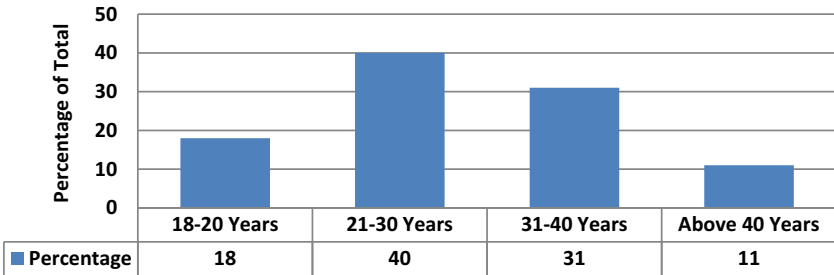
To better understand the dining-out profiles by age group, a study by FICCI-Grant Thornton in 2015 showed that the 21–30 age group comprised the largest segment of diners. Importantly, consumption of food services was driven predominantly by younger age groups, with those above the age of 40 constituting a small fraction. These figures were largely upheld by another study conducted by Nielsen in 2017 which specifically concentrated on India’s middle and affluent classes. The findings showed that food services consumption was more prevalent among the affluent classes-where a higher percentage dine out and spend more and also among the millennial age groups of both categories, who spend a greater share of their income on food as well as higher amounts per visit. Notably, the study highlighted that the bottom 80% of India’s middle class typically spend less than \$ 10 during a visit, demonstrating the limited purchasing power among Indian households for food services (see Figure 2).

Table 5.
Age structure of India’s
population

| Age group | Percentage | Male population | Female population |
|--------------------|------------|-----------------|-------------------|
| 0–14 Years | 26.31 | 185,017,089 | 163,844,572 |
| 15–24 Years | 17.51 | 123,423,531 | 108,739,780 |
| 25–54 Years | 41.56 | 285,275,667 | 265,842,319 |
| 55–64 Years | 7.91 | 52,444,817 | 52,447,038 |
| 65 Years and above | 6.72 | 42,054,459 | 47,003,975 |

Source(s): CIA (2021)

Figure 2.
Age profile
categorization of
Indian diners in 2015



Source(s): FICCI-Grant Thornton (2015)

Juxtaposing Table 6 with Table 4 allows shows that 80% of India's middle class can only afford to eat as Café's, QSR and CDRs, based on budgetary considerations. Furthermore, the culture of dining-out is most prevalent among the millennial age groups. A study by CBRE in 2018 showed that millennial Indians dine out around 5 days a month with 60% of millennials eating out more than thrice a month. In 2019, data published by the NRAI reported that the dining-out culture is fast picking up in India, led by major metro cities (Sanand, 2019). The report also said that Café's and coffee shops were the most popular formats, frequented by college students, office-goers, couples and families. Table 7 shows the eating out frequency and spending pattern among different age groups as well as cities.

What the data make evident is that prior to the COVID-19 outbreak, eating out was picking up pace in India, while ordering-in was much behind, both among consumers as well as in major cities. A schema of how an urban couple spends their year showed that dining-out was the third most popular recreational activity after movies and get-togethers (Table 8). However, what is also evident is that while dining-out in India is above the global average, it is

| Description | Middle income class (\$ 4,166 to \$ 13,888) | | | | | Affluent class (>\$ 13,888) | | |
|---|---|--------------|--------------|--------------|---------|-----------------------------|---------|--|
| Percentage of households that eat-out | 5% | | | | | 9% | | |
| Average annual spend on eat-out | \$ 76.38 | | | | | 138.88 | | |
| Percentage of total food expense spent on eating out among millennials (ages 18–34) | 10% | | | | | 13% | | |
| Average expenditure on eating out among millennials (ages 18–34) | \$ 109.91 | | | | | \$ 159.18 | | |
| Percentage of total food expense spent on eating out among Gen X (ages 35–50) | 3% | | | | | 7% | | |
| Average expenditure on eating out among Gen X (ages 35–50) | \$ 61.9 | | | | | \$ 130.38 | | |
| Split of classes into sub-categories | Bottom 20% | 2nd Quintile | 3rd Quintile | 4th Quintile | Top 20% | Top 10% | Top 1% | |
| Average spend per visit | \$ 1.34 | \$ 2.70 | \$ 4.87 | \$ 8.51 | \$ 28.3 | \$ 37.5 | \$ 88.8 | |

Source(s): Nielsen (2017)

Table 6.
Spending pattern on food services by Indian households (economic class and generation wise)

| Description | Eating-out frequency/month | Average spend/outing (\$) | Ordering-in frequency/month | Average spend/ordering-in (\$) |
|----------------------|----------------------------|---------------------------|-----------------------------|--------------------------------|
| 15–24 Years | 2.3 | 3.06 | 0.9 | 1.65 |
| 25–34 Years | 1.9 | 3.00 | 0.7 | 1.57 |
| >35 Years | 1.5 | 4.04 | 0.3 | 1.42 |
| Mega metros | 6.3 | 13.85 | 2.1 | 6.6 |
| Mini metros | 5.5 | 11.48 | 1.9 | 5.77 |
| Tier-I and II cities | 4.8 | 9.41 | 1.1 | 4.21 |

Source(s): Technopak, compiled by author from Edelweiss (2021) and Barbeque Nation Hospitality Limited (2021)

Table 7.
Spending pattern among consumers based on age groups and cities (2020)

Table 8.
Day-wise split of
activities of an urban
Indian couple in 2017

| Activity | Days spent |
|--------------------------------------|------------|
| Office | 109 |
| Sleeping | 104 |
| Commuting and parking | 28 |
| Cooking/Meals | 25 |
| Watching TV | 20 |
| Get-together with family and friends | 14 |
| Homework and children activities | 13 |
| Eating out | 9 |
| Gym/fitness | 7 |
| Shopping | 6 |
| Household chores | 4 |
| Birthday parties | 4 |
| Grooming | 3 |
| Films | 2 |

Source(s): Technopak-FICCI (2017)

below several other regions such as Hong Kong, Taiwan, Malaysia, Thailand, Vietnam, Singapore, Morocco, Saudi Arabia and Brazil (Nielsen, 2016).

4. The shifting shape of India’s income distribution

The national census of 2021 was stalled due to the second wave of the pandemic. As a result, estimates of India’s wealth distribution are available only from various market research agencies, which have used their own metrics and segmentation to show the different socio-economic classes of Indian households. Figures 3 and 4 and Table 9 show estimates from three leading research companies. What can be gleaned from these insights is that India has a substantially larger middle class and highly tapered upper and elite classes, suggesting a wide disparity in income among households.

The data consistently shows that India’s struggling households at the bottom of the pyramid would rise out of impoverishment as the country progresses into the third decade. This however, was not to be. By 2020, however, India had plunged into an economic recession

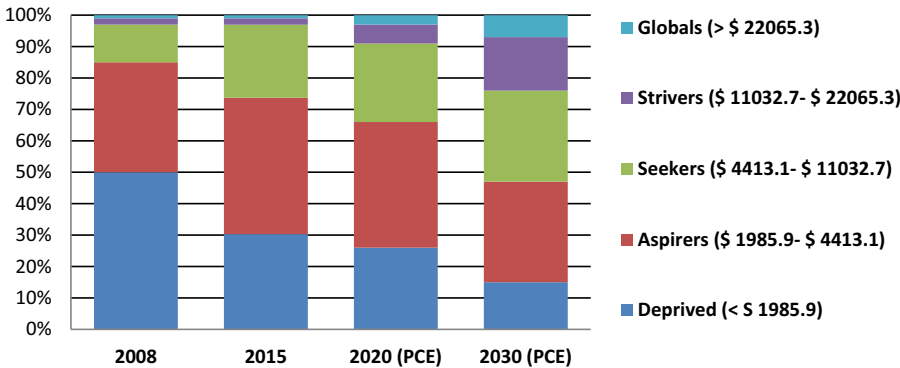
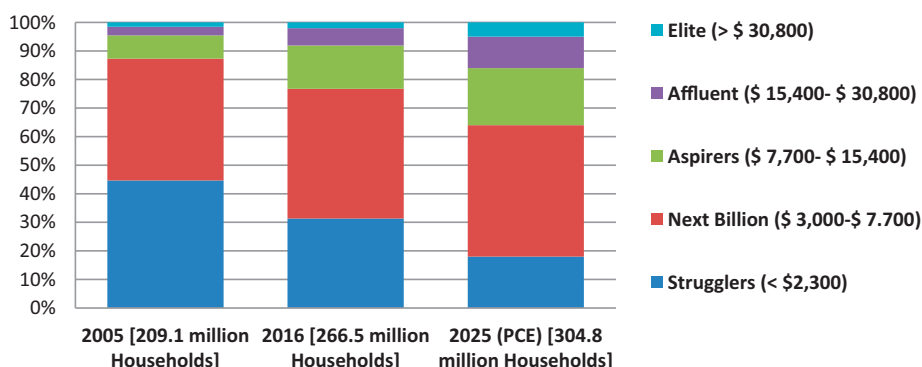


Figure 3.
Changes to India’s
socio-economic groups
from 2008 to 2030

Note(s): PCE-Pre-COVID-19 Estimates
Income Distribution is calculated in constant 2010 dollars. 1 US \$ = 45.73 INR
Source(s): McKinsey Global Institute, compiled from IBEF (2014) and IBEF (2018)



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Figure 4.
Changes to India's
socio-economic groups
from 2005 to 2025
(estimate)

Note(s): PCE-Pre-COVID-19 Estimates
Income Distribution is calculated in constant 2015 dollars. 1 US \$ = 65 INR
Source(s): BCG in Singhi *et al.* (2017)

| Households | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 (PCE) | 2020 (PCE) | 2021 (PCE) | 2022 (PCE) |
|---------------------|------|------|------|------|------|------|---------------|---------------|---------------|---------------|
| Household numbers | 236 | 239 | 243 | 247 | 251 | 255 | 259 | 262 | 266 | 270 |
| \$ 5,000–\$ 9,999 | 80 | 90 | 96 | 108 | 126 | 138 | 149 | 173 | 188 | 206 |
| \$ 10,000–\$ 49,999 | 17 | 19 | 21 | 24 | 31 | 36 | 41 | 54 | 64 | 79 |
| More than \$ 50,000 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |

Note(s): PCE- Pre-COVID-19 Estimates
Income Distribution is calculated in constant 2018 dollars. 1 US \$ = 70 INR
Source(s): Deloitte-RAI (2019)

Table 9.
Household distribution
by income slabs (in
millions)

before the onset of the pandemic (Kochhar, 2021). The lockdown and the economic fallout that followed severely impacted India's population. Data published by the Pew Research Center indicated the pervasive effect of the pandemic in India, with 75 million people driven back into poverty and a substantial reduction in the low and middle income groups. The pandemic had more than doubled India's poor and reduced India's middle class by 33 million people (Refer Table 10).

| Socio-economic group | Daily income (US \$) | Pre-COVID (millions) | Post-COVID (millions) | Difference | Impact |
|----------------------|----------------------|----------------------|-----------------------|------------|----------|
| High income | > \$ 50 | 3 | 2 | 1 | Decrease |
| Upper-income | \$ 20.01–\$ 50 | 22 | 16 | 7 | Decrease |
| Middle-income | \$ 10.1–\$ 20 | 99 | 66 | 32 | Decrease |
| Low income | \$ 2.01–\$ 10 | 1,197 | 1,162 | 35 | Decrease |
| Poor | < \$ 2 | 59 | 134 | 75 | Increase |

Note(s): Income Distribution is calculated in constant 2021 dollars. 1 US \$ = 75 INR
Source(s): Pew Research Center in Kochhar (2021)

Table 10.
Gross population
distribution by income
slabs (in millions)

5. How COVID-19 affected India’s food services sector

The onset of the pandemic had severely disrupted India’s food services sector, which was forecasted to bring in revenues of US \$ 20 billion in the Oct–Dec 2020 quarter alone. Data from Figure 5 show the severity of the contraction following the imposition of the first lockdown. The period April–June 2020 showed near total loss of revenues. Recovery was slow for most of 2020. Projections for 2021 were based on assumptions of a weakening pandemic, relaxation of restrictions and a resumption of normal life. This unfortunately has been reversed by the state-level lockdowns that have begun since April and are at full force in most of the states by May 2021. Reports have suggested that close to 98% of India is again under partial or complete lockdown, with night curfews, as well as restrictions and curbs on movement and normal conduct of business (Sharma, 2021; Sukumar, 2021).

To get a better understanding of how the whole industry has been affected, data published by Technopak are examined in Figures 6–8. Projections for the period from April 2021 suggest a steady recovery, with almost all segments recovering and exceeding the revenues reported prior to the pandemic outbreak. This may perhaps be very optimistic. The outbreak of the second wave was not foreseen at the time of publishing the data. The ominous projections of a third wave, with the continuing threat of mutating strains that are less responsive to existing vaccines suggest that estimations of recovery from April 2021 are too early and unlikely to be realized in the near future.

Figure 6 shows that the unorganized segment would grow at a much slower pace in the post-pandemic period. The sector which is comprised mostly of *dhabas* (highway joints), roadside eateries, street food and hawkers is the segment for which the least unit-level data are available. In the pre-COVID era, it constituted a sizeable chunk of the total market. However, its overall share has been steadily falling.

The aggregated data presented in Figure 6 do not consider the impact of prolonged and repeated lockdowns on this segment. A possible reason for this is the lack of data, since such outlets do not come within the tax net and also do not require real-estate unlike that of the organized food sector. The organized standalone and chain market register seemingly higher growth rates. Calculating CAGR from Figure 7 shows that CDR would register the sharpest growth in the standalone format, while from Figure 8, it is clear that QSR would be the fastest growing segment among chain formats.

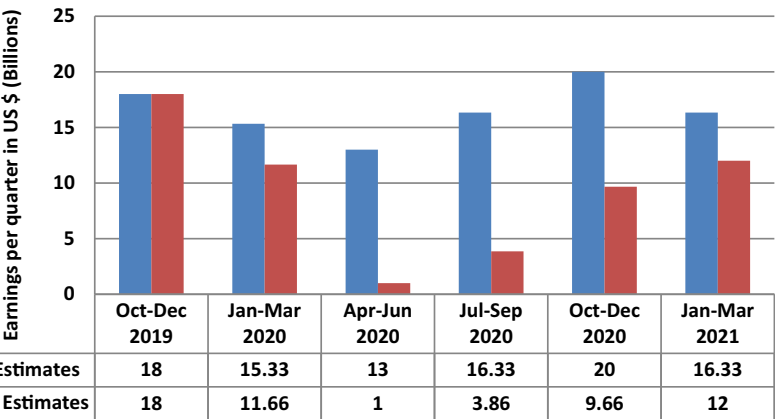


Figure 5.
Revenue changes in
food services (US \$
Billions) with COVID-
19 impact estimates

Note(s): Revenue Distribution is calculated in constant 2021 dollars. 1 US \$ = 75 INR
Source(s): Technopak, from Edelweiss (2021)

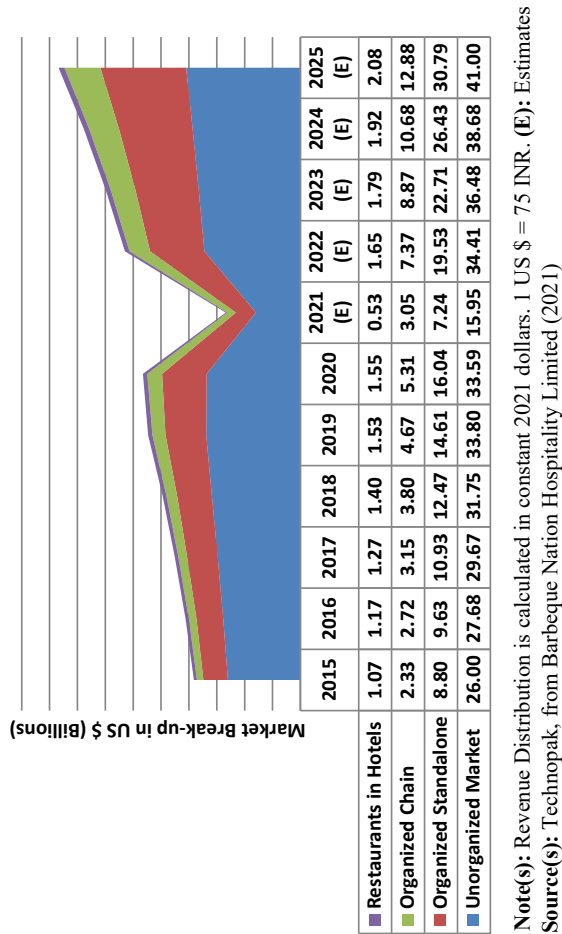
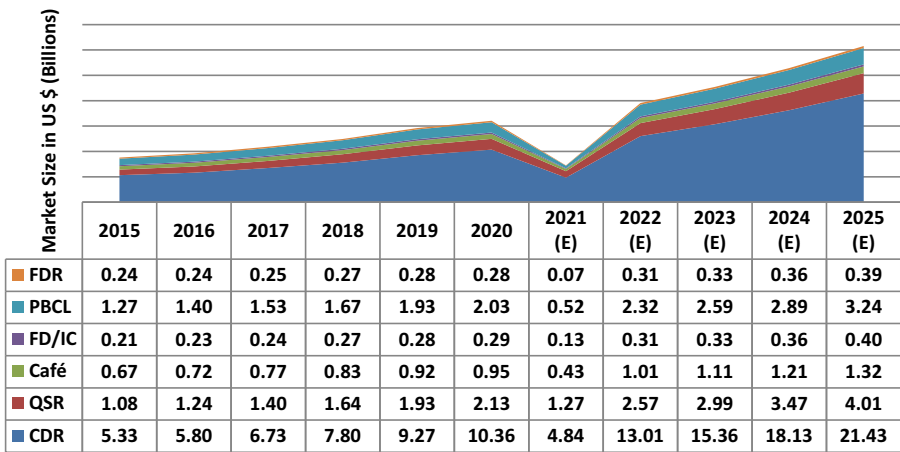


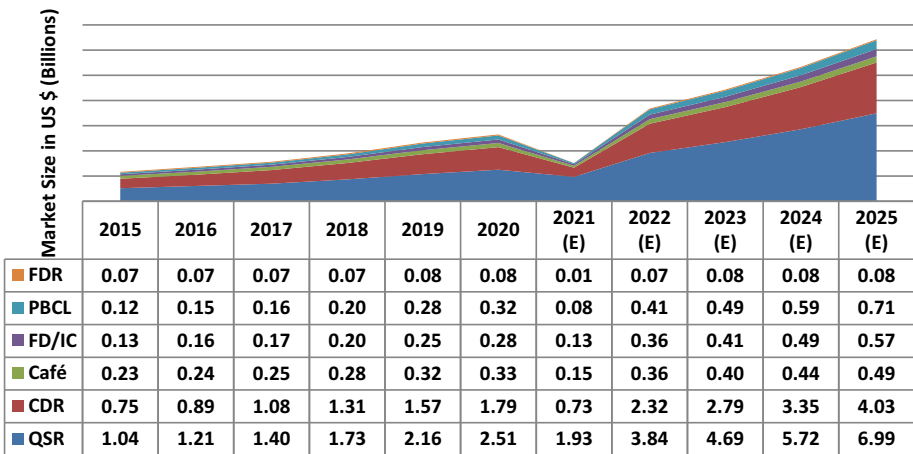
Figure 6.
Fiscal-year wise
estimates for India's
food services industry
(US \$ Billions)

Figure 7.
Fiscal-year wise
estimates for organized
standalone market (US
\$ Billions)



Note(s): Revenue Distribution is calculated in constant 2021 dollars. 1 US \$ = 75 INR. **(E):** Estimates. **QSR:** Quick Service Restaurants. **CDR:** Casual Dining Restaurants. **FD/IC:** Frozen Dessert/Ice-Cream. **PBCL:** Pubs, Bars, Café's and Lounges. **FDR:** Fine Dining Restaurant
Source(s): Technopak, from Barbeque Nation Hospitality Limited (2021)

Figure 8.
Fiscal-year wise
estimates for organized
chain market (US \$
Billions)



Note(s): Revenue Distribution is calculated in constant 2021 dollars. 1 US \$ = 75 INR. **(E):** Estimates. **QSR:** Quick Service Restaurants. **CDR:** Casual Dining Restaurants. **FD/IC:** Frozen Dessert/Ice-Cream. **PBCL:** Pubs, Bars, Café's and Lounges. **FDR:** Fine Dining Restaurant
Source(s): Technopak, from Barbeque Nation Hospitality Limited (2021)

The fixed cost implications are different between the unorganized and organized segments. Rentals and fixed costs would be high in the organized segment, especially in major cities where space is in high demand. Malls and F&B clusters typically charge high rentals, including maintenance costs, while high streets are typically congested in India, making it inconvenient for vehicular mobility and parking spots (see [Table 11](#)).

Even after the first lockdown was lifted, restrictions on restaurant operations, specifically in matters of social distancing, hygiene norms, seating capacity, working hours and sale of alcohol affected dine-in and revenues (Tandon, 2020). In the days leading up to the second lockdown in 2021, restrictions were imposed again, leading to much anxiety and concern in the industry (Das, 2021; Bhushan and Verma, 2021). With infection rates continuing in high numbers into May, the lifting of lockdowns and restrictions seemed to be uncertain (Sinha, 2021). There was open speculation that the restaurant sector would have to survive only on a takeaway/delivery mode for the foreseeable period (Roy, 2021).

6. Enter the disruptors: food aggregators and cloud kitchens

Food-tech and cloud kitchens are emerging phenomena in India that have found rapid growth and ascendancy. Until a decade ago, these segments were virtually unheard of. Their popularity was facilitated in large part by the growth of Internet and smartphones. The rapid rise of these formats points to an imminent disruption in the industry. Market research reports as late as 2015 on food services made no mention of these segments (FICCI-Grant Thornton, 2015). However, by 2017, their emergence was observed; aided in-part by increasing discretionary spends of younger consumers (FICCI-Technopak, 2017). India's food-tech industry has witnessed a steady rise in investments with the figures increasing even after the pandemic. Table 12 indicates the Year-on-Year trends in investment across the 3 major categories of technology-driven food services in India.

6.1 Cloud kitchens

Cloud kitchens are variously known as dark kitchens, ghost kitchens, commissary kitchens, virtual kitchens or cyber kitchens (Oracle, 2020). Oracle had classified the cloud kitchen concept into three main types (shared space, dedicated space and virtual brand) based on usage of space, real-estate and equipment, as well as branding. Unlike typical restaurants which offer seating for diners, these outlets cater exclusively to a delivery or takeaway market, situated in spaces where rentals are low to keep costs down (Sanwaria *et al.*, 2021).

Cloud kitchens are almost entirely dependent on food-tech and aggregators for sustaining their business model. In 2020, a report by Euromonitor International stated that India has around 3,500 cloud kitchens; far ahead of developed western economies like the USA (1,500)

Table 11.
Distribution of
organized segment
among real-estate
formats at 3 Indian
metros

| Description | F&B cluster% | High street% | Commercial space% | Mall% |
|-----------------------------|--------------|--------------|-------------------|-------|
| Overall market distribution | 7 | 60 | 4 | 29 |
| International restaurants | 8 | 26 | 4 | 62 |
| Domestic restaurants | 7 | 68 | 3 | 22 |

Source(s): CBRE (2018)

Table 12.
Y-O-Y investment
trends in Indian food-
tech segments in US \$
(Millions)

| Food-tech type | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|-------------------|------|------|------|------|-------|------|
| Food delivery | 60 | 129 | 81 | 89 | 1,672 | 102 |
| Cloud kitchen | 12 | 66 | 28 | 10 | 22 | 165 |
| Table reservation | 0 | 4 | 3 | 12 | 34 | 0 |
| Year total | 72 | 199 | 112 | 111 | 1,728 | 267 |

Note(s): Investment figures are calculated respective years in millions of US Dollars

Source(s): Compiled by author from BCG-Google (2020)

and the UK (750) (Schaefer, 2020). The sector was also poised for steep growth after the onset of the pandemic, forecasted to grow five-fold from \$ 400 million in 2019 to \$ 2 billion by 2024 (Biswas, 2020). However, these projections were revised by the end of 2020, with new estimates suggesting that cloud kitchens would take 30% of the total market share in India by 2021, up from only 13% the year before (Inresto, 2020). Table 13 lists out the some of the publicized players in this space in India. Besides these, there are hundreds of fragmented cloud kitchen entities spread all across the country. A significant portion of the players are regionally focused and do not enjoy pan-India presence, apart from Rebel Foods which owns the maximum number of brands and outlets. The typology of Indian cloud kitchens is indicated in Table 14.

Analysts have estimated that if an Indian cloud kitchen was set up with an initial investment of INR 1 million (Approx. \$ 13,333) with an average-order-value of \$4 and gets 750–800 number of orders daily, it could recover its entire investment within a year (Sanwaria et al., 2021). This volume is possible if multiple brands operate from the same kitchen in a shared space. The market researcher Datalabs by Inc42 calculated the cost of setting up a cloud kitchen in India to be about a third of that of a conventional restaurant (Cheema, 2019). A detailed split-up of costs is shown in Table 15. Cloud kitchens are specifically suitable for the delivery business. To get a better perspective, Table 16 compares the breakup of costs of a cloud kitchen vs. a typical restaurant in the delivery format. A sizeable cost component (almost 25%) is incurred as commissions to the delivery partner. This cuts into margins deeply, leaving traditional restaurants with practically no profit. In contrast, cloud kitchens offer economic viability due to lower cost of setting-up, running and better margins.

Cloud kitchens encapsulate the delivery meal experience in an affordable, value-oriented offering. The low-cost operating structure allows the format to pass on the benefit to the consumer. An expert at PwC in 2019 had described India as a “highly price-sensitive market” (BBC, 2019). Consumer studies in retail have shown that Indians are more demanding; seek value and are conservative with their spending when compared with other countries (BCG-CII, 2016). The economic impact of the pandemic, the threat of loss of livelihood and the uncertainty of further disease spreads might amplify this behavior, leading to less discretionary spends. This has indeed been reflected in market studies which have shown an increasing trend to saving and thrift (Beniwal, 2021; KPMG, 2021). The president of NRAI was quoted as saying that “*F&B business is largely fuelled by discretionary expenses*” (Bhatia, 2021). It is implied that eating out at restaurants will be affected. However, the cloud kitchen segment might be able to buck this trend by altering the cost structure vis-à-vis a traditional restaurant, allowing more value to be realized by end consumers.

6.2 Delivery apps

India’s online food-delivery market has evolved into a duopoly in recent times, with major international players marking their exit (Goel and Conger, 2020). Within the food service sector, these are called platform-to-consumer (P2C) segments in contrast to restaurant-to-consumer (R2C) segments, where the order is typically received and serviced online by the restaurant itself (Poluliakh, 2020). The online platform serves as an intermediary between the consumer and the food service outlet, providing detailed information about different restaurants, menus and offers (prices and discounts). The logistics of the collection and delivery are also handled by the platform’s own agents. The platform collects a commission from the restaurants and/or consumer (Barbeque Nation Hospitality Limited, 2021).

Comparative data from Table 12 show that close to 83% of all funding received in the food-tech space has been in the delivery segment. Collectively, the two largest players in the arena each are billion dollar plus in valuation, although they are yet to become profitable. Even in the midst of the pandemic, when investor sentiment was affected, these majors continued to

| Name of operator | Year of founding | Market value | Location/HQ | Remarks |
|--|------------------|--|----------------------|---|
| Zomato | 2008 | \$ 5.43 Billion (2021) | Gurgaon | Launched Zomato Infrastructure Services (ZIS) in 2016 to help build cloud kitchens for use by multiple restaurants. This venture was closed in 2020. It is now investing in other cloud kitchen start-ups like Loyal Hospitality of Bengaluru. Also tied-up with major star hotels and fine dine restaurants across India during pandemic for food delivery |
| Rebel foods | 2011 | Approx. \$ 800 million (2020) | Mumbai | Commenced operations as a restaurant in 2011. Converted into a cloud-only model by 2016. 350 kitchens across 35 cities in India as on Mar-2021. 11 brands in total including Behrouz Biryani, Oven story, Mandarin Oak, Lunch Box, the good Bowl, Sweet Truth, Frangi Bake, the 500 Calorie Project, Navarasam, Slay. Planning to offer IPO by end of 2022 and targeting Billion dollar valuation. Largest player in India by size, market value, brands and reach. Franchisee model launched for expansion. Deal signed with American Giant Wendy's in 2020 to open 250+ cloud kitchens across India |
| Box 8 | 2012 | \$ 55.5 million (2020) | Mumbai | Operates in 4 major cities: Mumbai, Pune, Bangalore and Gurgaon. Delivers close to 660K meals from 100 outlets monthly. Also owns the Pizza brand Mojo Pizza |
| FreshMenu | 2014 | \$ 53 million (2020) | Bengaluru | Internet-first restaurant mainly focused on Bengaluru's cosmopolitan market. Last major round of funding was 2019. 5 kitchens closed in 2020. Company reported a slow-down in 2021 with fresh investments drying up |
| Swiggy | 2014 | \$ 4.46 Billion (2021) | Bengaluru | Cloud kitchen business started in 2017 as Swiggy access in limited format. Hundreds of outlets opened and 200+ cloud kitchen brands created. Many shut down due to pandemic. Tied-up with most fine-dine restaurants and five-star hotels across India for delivery during pandemic. Unicorn company |
| Biryani-by-Kilo | 2015 | \$ 20 million (2020) | Gurgaon | Sells biryani by weight, including chicken and mutton. Last major funding in August 2020. Operates 48 outlets from 25 cities |
| Inner chef Petoo | 2015 | \$ 30 million (2020) \$ 1.69 million (2019) | Gurgaon Bengaluru | Provides food services in Gurgaon, Noida, Delhi, Mumbai, Bengaluru and Hyderabad. Struggling with seeding in recent years. Last major funding was in 2016. Had 31 franchisees with presence in 12 cities across 7 states at a time. Now, it is mainly based out of Karnataka and has an outlet in Chennai |
| Cure-Fit | 2016 | \$ 399 million (2020) | Bengaluru | Last major funding received in 2019. Offers entire gamut of fitness, diet, training and nutrition. Food is offered under its sub-brand EatFit. Outlets in 6 cities |
| Ghost kitchens | 2019 | \$ 3 million (2019) | Mumbai | Cloud kitchen incubator. Owns over 18 brands spread across desserts, biryani, south Indian food, snacks, Chinese, ethnic Indian and pizza |
| Ola foods | 2019 | No data available. Subsidiary of Ola | Bengaluru | Network of 40 cloud kitchens across 6 cities. Major brands include: The Biryani Experiment, Khichdi Experiment, Paratha Experiment, the daily diner, Bowl some, that Pizza Place, Nashta Express and Glupp |
| Source(s): Compiled by author from multiple sources and Tracxn (2021) | | | | |

Table 13.
Publicized cloud
kitchen players in India

Table 14.
Cost components of
cloud kitchens in India

| Cost center | Description | Cost (US \$) | Description |
|--------------------------------|------------------------|--------------------|---------------------------------------|
| Operating expenses | Rentals | \$ 357–\$ 571 | Area of 800 Sq. ft. Monthly rentals |
| | Licenses | \$ 214–\$ 257 | Multiple licenses required annually |
| | Kitchen and Equipment | \$ 7,142–\$ 14,285 | Cost for area- one time investment |
| | Staff | \$ 571–\$ 1,000 | Monthly, including chefs and commie |
| Marketing and selling expenses | Customer acquisition | \$ 571–\$ 2,000 | Monthly, including CRM, website, etc |
| | Social media | \$ 285–\$ 571 | Monthly |
| | Branding and Packaging | \$ 714–\$ 857 | Package design, containers, materials |
| | POS and inventory | \$ 57–\$ 71 | Monthly |

Note(s): Costs is calculated in constant 2019 dollars. 1 US \$ = 70 INR
Source(s): Compiled by author from [Limetray \(2019\)](#)

Table 15.
Typology of cloud
kitchens in the Indian
context

| Type | Floor area | Description | Specifics |
|--|---|--|--|
| Independent cloud kitchen model | 500–600 Sq. ft | The oldest and original model | Orders are online with delivery only model. Exclusive kitchen space. Highly specialized cuisine. Aggregator dependent. Found all across India |
| The brand house model | 2000+ Sq. ft | Multi-brand kitchen for multiple cuisines. Single kitchen. 1 mother kitchen, many child brands | Adopted by Rebel foods. Online orders to single kitchen with multiple brands. Different cuisine variety. Aggregator dependent, but with own platform also |
| The Storefront Franchise model | 1,200–2000 Sq. ft | Single brand in single kitchen, but multiple outlets and a visible storefront | Has the traits of a typical cloud kitchen with the option of takeaway. Allows physical access to end customers. Used by FreshMenu in Delhi |
| Aggregator Owned (Shell type) model | Multiple kitchens of 100–500 Sq. ft in a larger kitchen | Multi-brand offering owned by an aggregator with rented kitchens. A shell model with only space and basic utilities. Clients bring all equipment, staff, raw materials and menu etc. | Parent aggregator is source of orders. Provides space for partner brands in same kitchen. Higher vertical integration. Used by Swiggy in Swiggy access |
| Aggregator Owned (Filled-shell type) model | Multiple partners, each operating a kitchen space of 250–500 Sq. ft | Rented kitchens, but equipment provided by aggregator. Technical details shared, including recipes. Has a visible storefront | Fuller than the shell type model, with more support from aggregator. Customers can walk into the store for takeaway. Patronized by Zomato |
| Fully Outsourced model | n.a | Everything is outsourced. Even major kitchen work is outsourced. Chefs only do final touches and finishing | Infrastructure services Called Kitopi model after the call-center. Own online platform. Raw materials purchased and stored. Pre-prepared in central kitchen. Sent to satellite kitchen for final touches |

Source(s): Compiled by author from [Limetray \(2018\)](#)

attract funds, allowing their businesses to grow and race closer to profitability. Table 17 lists out the major players in the past and the present time. The growth of the two dominant food-delivery platforms in India has been phenomenal, rising from near obscurity and confinement in major cities in 2015 to nationwide presence by the end of 2020. Interestingly, it can be seen from Table 13 that both Swiggy and Zomato had launched their own cloud platforms only to wind it down later. Clearly, the delivery business was more profitable. To lend a perspective

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| Attribute | Particular | Cloud kitchen% | Restaurant% |
|-------------------|------------------------------|----------------|-------------|
| Fixed costs | Rent | 25 | 24 |
| | Wages/salaries | | |
| | Energy (Electricity + Gas) | | |
| Raw material | Meat/vegetables/oil etc. | 40 | 18 |
| Packaging | Preparation for delivery | NA | 5 |
| Ads and discounts | Promotion of outlet | | 25 |
| Commissions | Paid to the delivery partner | 25 | 25 |
| Profit margin | What is retained by outlet | 10 | 3 |

Source(s): Cheema (2019)

Table 16.
Comparison of costs
between a cloud
kitchen and restaurant
in delivery format

| Name of operator | Year of founding | Market value | Location/HQ | Remarks |
|------------------|------------------|------------------------|-------------|---|
| Zomato | 2008 | \$ 5.43 Billion (2021) | Gurgaon | Started off as a restaurant review portal. Commenced its delivery business in 2015. \$ 977 million funding raised in 2020. \$ 252 million raised in Feb 2021. Approximately 230,000 gig workers in 2019. Offers a Zomato Gold loyalty programme |
| Amazon India | 2012 | No data | Bengaluru | Commenced in May 2020. Operations solely in Bengaluru in 62 pin-code areas as of March 2021. Offers free delivery for prime members and charges nominal fees for non-prime customers |
| Food Panda | 2012 | \$ 31.7 million (2017) | Delhi | Early entrant in market with operations in 5 cities. Sold off to Ola India in December 2017. Ola shut down the delivery business 18 months after acquisitions to concentrate only on the cloud kitchen business |
| Dunzo | 2014 | \$ 267 million (2021) | Bengaluru | Niche player concentrated only in 7 cities. Offers a drop-off facility also involving food among a "Curd to condoms" delivery model. Will pick up item of choice from store/restaurants and deliver to specified location |
| Swiggy | 2014 | \$ 4.46 Billion (2021) | Bengaluru | \$ 157.88 million funding in 2020. \$ 800 million funding until April 2021. Over 250,000 gig workers as of 2019. Offers a Swiggy Super loyalty programme |
| Uber eats | 2017 | \$ 350 million (2020) | Gurgaon | Ride sharing platform entered food delivery business in May 2017. Started business in Mumbai and expanded to other cities. Sold off business to Zomato in Jan 2020. Had 10 million users at time of sale. Took 10% stake in Zomato |

Source(s): Compiled by author from multiple sources and Tracxn (2021)

Table 17.
Publicized food-tech
delivery players
in India

on the growth of the two players, [Table 18](#) provides a comparative view on the city-wise presence and daily orders across time.

The COVID-pandemic and the associated lockdowns, while affecting the restaurant industry as a whole had provided some relief for online delivery apps. Despite curfews and restrictions for dine-in at restaurants, these segments were given sufficient leeway to operate under the consideration that food delivery was an “essential item” ([Arun, 2021](#)). Reports in October 2020 suggested that the two biggest food delivery apps were able to recover their business volume to pre-COVID levels ([Abrar, 2020](#)). By November 2020 Goldman Sachs had forecasted both Swiggy and Zomato to become profitable entities in 2022, revising earlier estimates that had suggested late 2023 ([Dash, 2020](#)). In April 2021, Zomato filed for an IPO with India’s regulator and was expected to raise \$ 1.1 billion in funds ([Toh, 2021](#)).

HSBC in a 2021 report claimed that Swiggy and Zomato would become profitable in the COVID-era due to increase in the average-order-value coupled (AoV) with reduction in discounting ([Salman, 2021](#)). The cost-wise breakup is shown in [Table 19](#). A sustained pandemic period extended over multiple lockdowns and repeated waves of infection would allow the delivery players to dominate traditional formats, permitting losses to be recovered.

A Bank of Baroda Capital Market study claimed that approximately 63% of the online food service customers in 2019 comprised of millennials ([Burde and Naik, 2021](#)). Projections show the P2C segment moving past R2C by 2025. The differences of the pre-pandemic and post-pandemic estimates suggest that the market would grow by an additional \$ 1.7 billion due to the pandemic alone to reach a cumulative \$ 18.1 billion by 2025 ([Figure 9](#)).

The projections are based on the underlying assumption that the pandemic is a singular, unusual occurrence rather than a prolonged and persistent social disruption. The figures therefore might be much higher in the online delivery space, as latitude for regular restaurant operations are curtailed and/or restricted. The longer the pandemic continues to persist; the

Table 18.
Growth of the major
food-tech players (City
count and daily
order count)

| Description of food-tech app | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|--------|---------|---------|-----------|------|
| Swiggy: Number of cities by presence | n.a | n.a | 44 | 500+ | 600+ |
| Swiggy: Order counts per day | 40,000 | 80,000 | 700,000 | 1,400,000 | n.a |
| Zomato: Number of cities by presence | n.a | n.a | 63 | 500+ | 556+ |
| Zomato: Order counts per day | 30,000 | 100,000 | 650,000 | 1,300,000 | n.a |
| Note(s): n.a- Data not available | | | | | |
| Source(s): Compiled from multiple sources and BOBCAPS in (Burde and Naik, 2021) | | | | | |

Table 19.
Pre-COVID and Post-
COVID breakup of cost
components for Online
Aggregators

| Cost-wise breakup per order on online aggregators | Pre-COVID | Post-COVID |
|---|-----------|------------|
| Average value of an order in (US \$) | 4 | 5.33 |
| (Minus) amount taken by restaurant (US \$) | 3.066 | 4.13 |
| (Equals) net revenue of aggregator App (US \$) | 0.93 | 1.20 |
| (Minus) delivery cost (US \$) | 0.60 | 0.53 |
| (Minus) support cost (US \$) | 0.066 | 0.106 |
| (Minus) discount (US \$) | 0.266 | 0.133 |
| (Minus) restaurant refund (US \$) | 0.066 | 0.066 |
| (Equals) contribution margin (US \$) | (-0.066) | 0.360 |
| (Minus) marketing + fixed cost (US \$) | 0.333 | 0.266 |
| (Equals) EBITDA for the delivery food-tech aggregator (US \$) | (-0.40) | 0.0933 |
| Note(s): Revenue distribution is calculated in constant 2021 dollars. 1 US \$ = 75 INR | | |
| Source(s): HSBC in S.H. (2021) | | |

steeper would be the rise of online deliveries. However, the rise of these online aggregators to dominant positions in the industry has not been without contention. The NRAI had called these apps “Digital Landlords” for their exorbitant commissions and punishing terms (Sharma, 2020). There have also been cases of labor unrest among gig workers, protesting unfair employment practices (Vaidyanathan, 2020). A report by the Oxford Internet Institute claimed that the work cultures in Swiggy and Zomato were the worst in India, with unfair policies and practices prevalent in wages, working conditions, contractual terms, management policies and worker representation (Fairwork, 2021).

A particularly sore issue for restaurants was the lack of access to customer data, which aggregators refuse to share (Narayanan and Ambwani, 2021). The NRAI in 2020 had mulled the creation of a rival aggregator online delivery portal to offer better terms to restaurants (Sharma, 2020). Until 2021, the NRAI had not succeeded in developing a viable alternative that can match the scale and scope of these aggregators. The entry of a dominant e-tailer like Amazon is predicted to shake the market hold of the exiting players, due to lower commissions and better terms offered to restaurants (Motilal Oswal, 2021). However, Amazon at the present time is operating only in a single city in India (Kelkar, 2021). Its large scale expansion might have long-standing implications for the delivery segment.

6.3 The future is hyperlocal

Food services are by default hyperlocal. Unlike conventional e-tailers that transport merchandize over long distances, hyperlocal businesses work on satisfying demand within circumscribed geographies using other businesses based within these regions (Team Inc42, 2019). The augmentation of logistics capabilities supported by technological advances allows such businesses to respond to customer needs rapidly, usually in less than an hour. India is attracting investment to hyperlocal startups in a diverse range of portfolios such as groceries, pharmacy, logistics, etc. (Singh, 2020). The COVID-19 pandemic would accelerate the growth of such services due to the inherent restrictions it imposes on mobility and physical access.

7. The dynamics of disruption

The effects of the predicted disruption in the food services sector are two-fold:

- (1) The manner in which the consumer purchases food services.
- (2) The existing structure of the industry

A prolonged COVID-era punctuated with multiple waves of the pandemic and mutating virus strains will continue the legal confinement of citizens, leaving them more dependent on hyperlocal businesses. This may be embraced by the younger generation given their inclination toward food services and online aggregators. However, there will be a significant

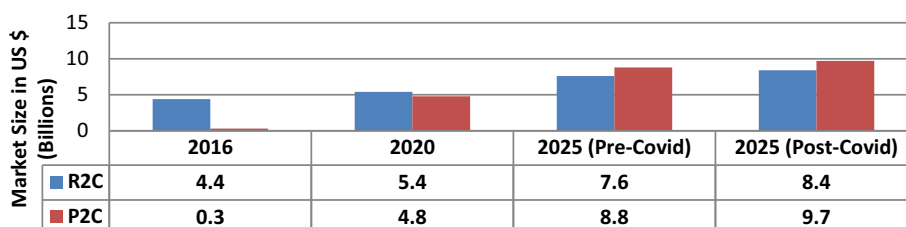
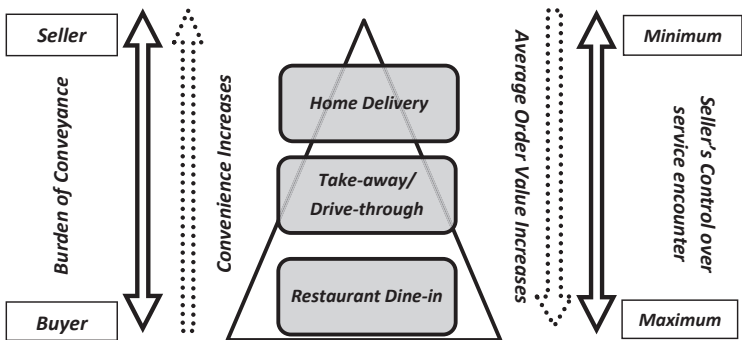


Figure 9.
Online P2C and R2C
market in India with
estimates (US \$
billions)

Source(s): Technopak, from Barbeque Nation Hospitality Limited (2021)

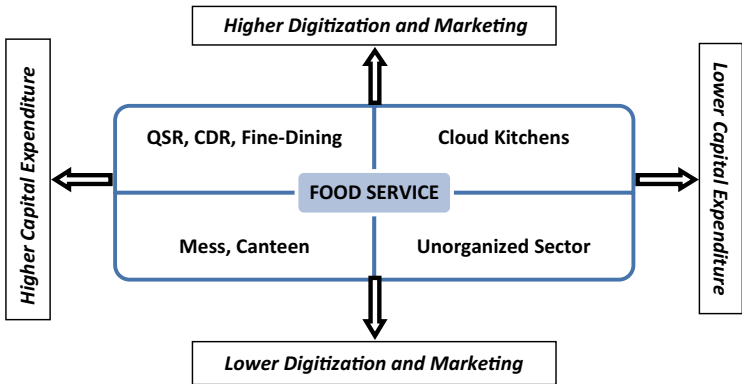
impact on discretionary spends due to the economic fallout of the pandemic. This will affect spending on food services (CRISIL Research, 2020b). Cloud kitchens can circumvent this problem by value pricing and food-portioning to position their offerings as home meal replacements.

The indicators seem to suggest that the future of food services will be sustained by the delivery segment due to the COVID-19 virus. This will fundamentally shift the control over the service experience from the restaurant toward the online aggregator app (Figure 10). The landscape of the industry will be altered due to the predicted capitulation of the unorganized segment. This may be attributed to continuing concerns and fears of safety and hygiene within this segment. It is unlikely that the unorganized segment will be able to weather the ravages of the pandemic over prolonged periods due to lesser working capital. The projections which have forecasted a significant share of the unorganized market even in 2025 may not hold true in the face of unfolding crises. The future may point toward low-cost business models which are supported by higher digitization and marketing. The cloud kitchen model sustained by aggregators might be a viable format for the coming era (Figure 11).



Source(s): Author's own

Figure 10.
Comparing different
food service
consumption formats



Source(s): Author's own

Figure 11.
The rise of lower-cost
and highly-digitized
cloud kitchens in the
post-COVID era

8. Concluding observations: the way forward

Consumer food habits have fundamentally changed in the COVID-era. A study by IPSOS in the Indian context has revealed altered dining behavior, with increased focus on healthy and immunity boosting foods (Gangwani, 2020). Notably, the annual food trends report by Godrej (2021) which compiles expert opinions of food writers, consultants, chefs, hoteliers, restaurateurs and industry leaders from across India suggested the post-pandemic period to be driven by safety and health concerns and the rising dominance of cloud kitchens.

Cloud kitchens have inherent advantages in operating during the COVID-era due to a scalable architecture and lowered costs of labor and rental. However as a downside, these segments do not enjoy the same visibility or brand presence of full-service operators and are entirely dependent on online aggregators for their sustenance. The absence of client-facing-staff would also make service recovery difficult in the event of a failure. Furthermore, the problem of commoditization is increasingly ominous as the segment becomes crowded.

The inherent challenge of cloud kitchens would be to balance the pre-COVID consumer drivers of discounts, convenience and variety with the post-COVID drivers of downsized spending, safety and hygiene in a transparent setting to build consumer confidence. These may be achieved through various digital features like live kitchens and streaming.

Food-tech aggregators on the other hand, face more daunting challenges. Their increasing prominence and growth will invite the attention of regulators and the government as they become “too big to ignore”. Already, complaints to the competition commission of India have flagged anti-competitive practices of these aggregators and their potential abuse of dominant position (CCI, 2020). There are also fears from industry watchers about a digital monopoly imposed by these players, who after reaching market dominance may overcharge customers and restaurants (Shahane, 2020). Furthermore, as the gig economy expands in India, it will attract the attention of lawmakers to protect the interests of such workers (ETTech, 2021). Food aggregators already have hundreds of thousands of delivery agents on their payroll. The Indian government is deliberating labor codes for this emerging workforce (Bala, 2021). There is also a genuine possibility of unionization of gig workers for collective bargaining and representation. These factors may ultimately extract additional cost expenditures from the end-consumer.

Notwithstanding the above risks, the present market conditions are favorable for the growth of these segments. India had more than 200 million online shoppers in 2020 (BCG-Google, 2020), and this is slated to increase further. The vast amounts of unit-level user data collected by aggregator apps would allow them to leverage on technologies like artificial intelligence, machine learning and data mining for targeted marketing, advertising, demand management, route planning and optimization as well as horizontal integration into other hyperlocal segments. For consumers, the long honeymoon with aggregators may be coming to an end, but for the aggregators the party is just beginning.

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Corresponding author

Kishore Thomas John can be contacted at: f13kishoret@iima.ac.in