The emergence of Ghost Kitchens in the restaurant industry: Operational and labour perspectives

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Abstract

The emergence of Ghost Kitchens in the restaurant industry is a contemporary phenomenon that appeared recently in the context of the so-called Gig economy. This new business model became very popular during the COVID-19 pandemic in global scale. Ghost kitchens started as outsourced food production kitchens for popular high-street restaurants with no direct contact with customers (delivery only). Recent developments involve the creation of virtual restaurants from the big online delivery platforms (such as Deliveroo and Uber-Eats) who dominate the market. Despite their popularity, certain ethical considerations arise related to the working conditions and potential worker exploitation cases. The existing research on this topic is limited to only a handful of empirical studies and anecdotal accounts related to the working conditions in Ghost Kitchens. This paper provides some useful insights from an operational and labour perspective. It is hoped that this paper will trigger further discussion and research on this topic.

Introduction

The restaurant industry was always very competitive and throughout time, new business models appeared to improve operational efficiency and increase profit (Muller, 2018, Ritzer, 2013). The concept of 'ghost' kitchens (also known as 'dark' or 'cloud' kitchens) appeared in the mid-2010s as a response to the increased demand for off-premises orders and the rapid development of online food delivery platforms (Riviera, 2019). The phenomenal demand for food delivery services during the COVID19 pandemic, has accelerated the development of this new business model as a major trend in the restaurant sector globally (Miller, 2021). According to Euromonitor (2019), the delivery-only restaurants could be a US $1 trillion business by 2030.

The concept was originally based on food production outsourcing, for independent and chain restaurants, to a kitchen that is not located on the restaurant's premises; the food orders reach the ghost kitchen through one of the available online delivery providers' app (ODP – i.e. Deliveroo, Uber Eats, etc). Menu prices are determined by the host restaurant; the ODP, ghost kitchen and host restaurant receive a fixed percentage from each menu item sale. The customers who use the app, order the food from the host restaurant but they don't know where the food is produced. Some online delivery platforms allow restaurants to sell their food under more than one brand name if they offer different menus (Eccles, 2021). This practically means that the same menu is possible to appear in more than one category on the app (i.e. Chinese, Thai, Greek, Italian, etc), which is misleading for consumers who think that these are menu options from different restaurants. This raises a number of ethical issues for both consumers and providers (Tan et al., 2021). There are also concerns raised regarding the working conditions in ghost kitchens, which hardly meet the minimum industry standards in terms of kitchen operations to maximise profit (Meddings, 2020). The emergence of ghost kitchens can be also viewed as one of the latest developments in the so called 'gig economy' (Popan, 2021). As a relatively new phenomenon, the gig-economy has caused a major disruption for the labour market in global scale; there are many voices that call for regulation and government

intervention to alleviate phenomena such as exploitation, discrimination and exclusion faced by the gig workers (Tan et al., 2021).

The aim of this paper is to explore the concept of ghost kitchens from an operational perspective, with a particular focus on the working conditions for the ghost kitchen workers. This is a relatively new topic area, with only a few empirical studies currently available. In addition, this paper can be viewed as the kickstart of a wider research project that will investigate ghost kitchens as a distinctive part of the gig economy from a labour force perspective.

Delivery models and the link to ghost kitchens

The existence of ghost kitchens is linked with food delivery and take away sector, as part of the restaurant industry. The delivery and take away as food distribution channels first appeared in the U.S. four decades ago. In 1984, Domino's Pizza introduced the "*30 minute delivery pledge*" that promised another pizza or a full refund to any customer who wasn't satisfied with the food or service. Domino's withdrew this scheme almost ten years later after a $79 million court judgement (Knight-Ridder, 1993). Delivery and take away were adapted very fast as a key component of the restaurant offerings; their popularity is mainly due to convenience and price from the customers' perspective and the lower operational costs (compared to traditional 'bricks and mortars' restaurants) for operators (Muller, 2018). Another key milestone was the launch of the first ODP in October 1995 from two Stanford graduates who created in the U.S. the online platform Waiter.com (Corcoran,2000). Online food delivery today is a multi-million segment of the global restaurant industry, with an estimated value of US$340 billion; almost half (US$158 billion) of this revenue is generated in China (Statista, 2021).

The intense competition and continuous evolution of the online food delivery has led to the emergence of different models with distinctive characteristics. Muller (2018) identifies eight different models of online food delivery in relation to the kitchen type and ownership (Figure 1); for the purpose of this paper, we will focus only on the first four models. '*The Independent*' is the basic model where the restaurant has control over the entire process (receive the order by phone or the Internet, produce and deliver the food). In this model the restaurant absorbs all the incurred costs and revenues generated from this process; this model is popular (but not always successful) mostly with independent restaurants and local chains (Muller, 2018). The second model refers to the so called '*cloud kitchens*'; these are takeaway and food delivery outlets that do not provide dine-in facilities (Choudhary, 2019). The concept was originally introduced by Domino's 35 years ago in the U.S.: they created an extended network of franchised outlets that could offer only delivery and take away options (Keesling, 2020). This business model ensures that the restaurant chain can reach a large or mega customer base that covers a city, region or an entire country. The parent company (franchisor) controls the ordering and food production process through sophisticated online platforms that utilise AI cutting edge technology; the production and delivery of the food takes place locally, in one of the franchised outlets. This model can be effective for medium to large scale chain-restaurants that utilise franchise as their main expansion strategy (Muller, 2018).

The following two models refer to '*ghost kitchens*' affiliated to order-only '*virtual restaurants*' (Filloon, 2018). The two models are complimentary to each other and they are identified by three key main components: 1) there is no 'dine-in' or 'take-away' option which is translated to significantly lower operation costs; 2) instead of hiring delivery employees is making use of third-party delivery companies, through a partnership or agreement; and 3) by utilising the flexibility that the ODP provides, one kitchen can produce multiple menu items from different cuisines. Some suggest (i.e. Miller, 2021; Muller, 2018; Shenker, 2021) that these two models, pose as a threat to traditional 'dine-in' restaurants, due to the highly efficient hybrid menu concepts, specialised production and logistics, and low labour and operations cost, with no 'eat-in' customers. One of the most famous ghost kitchens due to the media attention received, was the New York based delivery-only restaurant Ando, started by celebrity chef David Chang in 2016. Ando was sold to Uber Eats in early 2018 (Dai, 2018). This takeover is indicative of relatively a new market trend that grows exponentially (Isaac and Yaffe-Bellany, 2019): all the major ODPs (i.e. Uber Eats, Deliveroo, GrubHub, Meituan Waimai) establish their own virtual restaurants brands. This was a major disruption on the restaurant delivery business in global scale (Khan, 2020). This business model is also known as '*Dark Kitchen*'; it can be defined as a space created by an OPD, to achieve the lowest cost per delivery mile from the virtual restaurant kitchen to the highest density of users (Muller, 2018). While this is similar to the cloud kitchen model, in this case the OPD establishes a cluster of small dedicated but competitive

restaurant kitchens in a single site (Meddings, 2020). As a business model is highly efficient and profitable; there are nevertheless many concerns related to the working environment and conditions, discussed in the following section.

Figure 1: Food delivery models

1. Independent	2. Cloud Kitchens	3. Ghost Kitchens
4. Virtual Restaurants	5. Bulk Drop System	6. ODP - No Fleet
	7. ODP - Owned Fleet	8. ODP - Dark Kitchens

Source: adapted from Muller (2018), p.4

Working conditions in ghost kitchens

The pressure to reduce operational costs and increase the profit margins has always a negative impact on kitchen workers. Working conditions in commercial kitchens have always been challenging (Giousmpasoglou et al., 2022) especially in casual and quick-service restaurants as well as catering providers. If viewed under the lens of the gig economy (Popan, 2021), the business model, setup and working conditions in ghost kitchens raise questions regarding two fundamental issues. First, the suitability of the workspace: ghost kitchens are usually situated inside warehouses or windowless prefabricated structures (such as shipping containers) on industrial estates or car parks, often in undesirable areas where the rent is significantly lower that the high street commercial spaces (Payne, 2021; Shapiro, 2022). Shenker (2021) provides the following description for one of these sites:

The Deliveroo Editions site at Cranford Way, north London, sits at the back of an electricity substation, sandwiched between a boxing gym on one side and some overgrown scrub on the other. Despite the rumble of motorcycle engines making their way to and from the entrance, and the beeps of lorries reversing out of the adjacent self-storage and warehouse complex, it feels eerily quiet. You could sit here for hours and almost never hear a human voice.

Despite the frequent inspections by the relevant government agencies and authorities (i.e. the Food Hygiene Agency), health & safety and food hygiene standards are often neglected at the expense of the kitchen workers and customers (Crawford and Benjamin, 2019). Working in confined spaces with unsuitable ventilation and lighting under extreme conditions of heat and humidity can cause harm to the kitchen workers (Guzder, 2019). Meddings (2020) graphicly describes the working conditions in a ghost kitchen located in Battersea, south London:

Inside are eight small kitchens — all but one without a window — squeezed into a 4,452 sq ft space. Each is roughly the size of a garage and employs between five and seven chefs, working in shifts from midday to 10.45pm. They can pump out up to 1,000 orders on a busy evening, as Deliveroo drivers arrive at regular intervals to pick up brown bags of food ordered by hungry nearby residents.

In another description of a ghost kitchen located in Los Angeles provided by Loizos (2019), a windowless warehouse hosted 27 kitchens in a 300 square-foot area and a lot of low-wage migrant workers in 'panic mode'. These are recorded cases in two of the most developed countries in the western world; maybe it wouldn't be an exaggeration to suggest that these working conditions wouldn't be any different to a sweatshop located in a developing country. This fact raises concerns and questions about the second key issue: worker exploitation in ghost kitchens. De Groote (2021) argues that ghost kitchens "*make fully invisible a workforce that is already so often hidden from view behind the kitchen doors*". This 'invisible' workforce, which is the backbone of the gig economy, is populated mostly with male migrant low-wage workers (Popan, 2021). The employment relationship (Figure 2) is 'on-demand' and 'short-term' and is often described with labels such as 'freelancer', 'self-employed', 'independent worker', 'contingent worker' and 'non-traditional worker', amongst others (Tan et al., 2021). The flexible contractual agreements include many 'grey' areas in favour of the employer, including the ease of termination without compensation. Harvey et al. (2017) used the term 'neo-villainy' to characterise the hyper-flexible and precarious working conditions in the service sector. In their study of freelance personal trainers, they (ibid.) identified four distinctive features attached to this phenomenon: bondage to the organisation; payment of rent to the organisation; no guarantee of any income; and extensive unpaid and speculative work that is highly beneficial to the organisation.

Figure 2: Contractual agreements in Ghost Kitchens
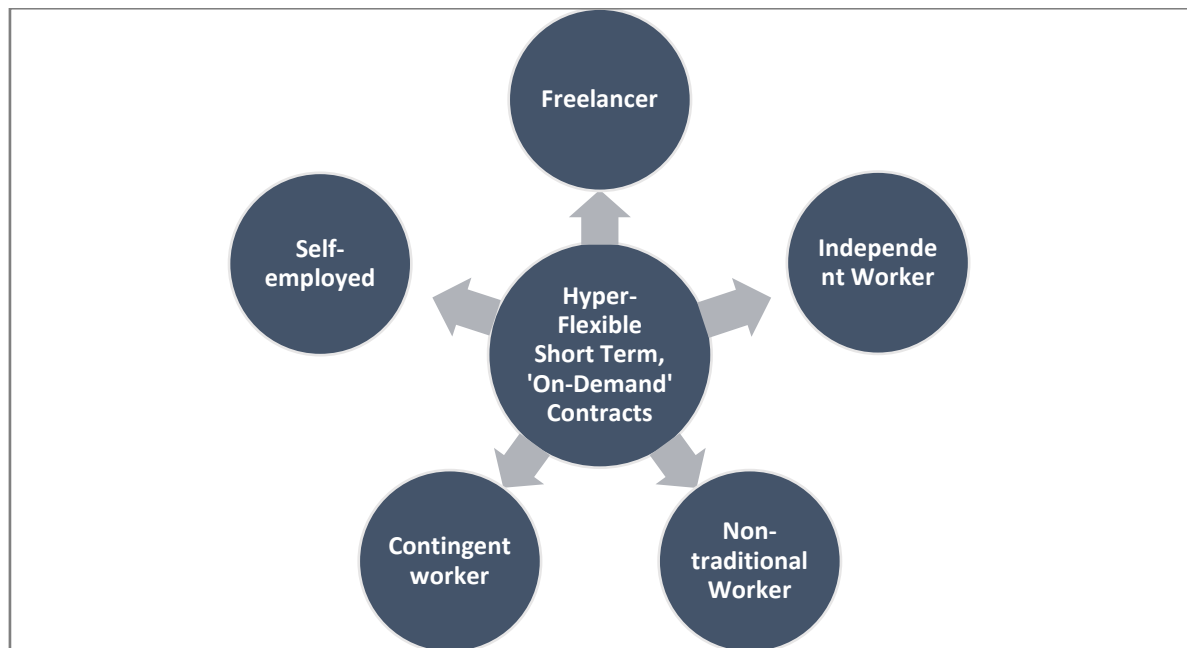
Source: adapted from Tan et al. (2021)

The hyper-flexible employment relationship (Rose, 2009) does not guarantee any standardised patterns of work or pay for workers, while employers have complete discretion over the hours worked and paid for. This mode of work entails few of the employment rights enjoyed by workers on standard contracts (i.e. full-time, permanent or open-ended appointments) (Harvey et al., 2017). The 'terms and conditions' of employment vary significantly across different countries; even in the same country and company are observed different contracting approaches (Popan, 2021). The fast adoption of the hyper-flexible employment relationships in the western world, signposts the end of an era in labour relations with good working conditions, satisfactory salaries, and protected employee rights. The following section takes a critical view on the background and origins of the gig economy in relation to labour relations and work characteristics.

Picture 1: One of Deliveroo's 'dark kitchen' sites in London

Source: Shenker (2021); **Photo credits:** Jack Shenker

From Max Weber to Gig Economy: the de-humanisation of work

The precarious work arrangement that characterises the Gig Economy is not a new phenomenon; worker exploitation is synonymous to capitalism and goes back to the sixteenth century (De Ruyter and Brown, 2019). The new element that constitutes the Gig Economy as a distinctive contemporary phenomenon is the use of sophisticated technology to control productivity, the workflow, and the workers themselves (Popan, 2021). Larsson and Teigland (2020) suggest that the digital transformation of labour poses some unique challenges for the contemporary world of work. These challenges were predicted three decades ago by the sociologist George Ritzer (1993) in his seminal work "*The McDonaldization of Society*". Building on Max Weber's theory or rationality and bureaucracy, Ritzer defines McDonaldization as "*the process by which principles of the fast-food restaurant are coming to dominate more and more sectors of American society as well as of the rest of the world*" (Ritzer, 2013, p.1). The McDonaldization concept has begun a global phenomenon in different sectors such as education, leisure and travel, media, health care, religion as well as the society itself (Bohm, 2006). McDonaldization is based in four principles: efficiency, calculability, predictability and control (Table 1). The successful application of this concept depends heavily on the use of nonhuman technologies (i.e. artificial intelligence) and machines to control the human workers (Ritzer, 2013, p.102-103); this results to increased productivity and lower operating costs.

The authors suggest that the working conditions in ghost kitchens push the four McDonaldization principles to the limits. Efficiency and calculability are pushed to the maximum through the use of sophisticated software that maximises the output (i.e. number of dishes produced per hour). This is achieved by the quantification of work, with repetitive and predictable tasks and the absence of any meaningful employee input. The worker becomes part of the food production line; in this sense, ghost kitchen workers are turned into what Ritzer (2013, pp.102-103) calls '*human robots.*' In addition, the algorithmic management of work (Rosenblat, 2018) through the platforms in use (i.e. Deliveroo, Uber Eats, etc.) enhances digital control and discipline. The hyper-flexible employment relationships in ghost kitchens, create the conditions for what Popan (2021) calls '*flexploitation'* (from flexible exploitation), which adds an additional layer of precarity for migrant workers and women. In this context, work schedules and income are totally unpredictable: in one week there can be zero hours of work, the following week 30 hours in late night shifts (Foti, 2017).

Table 1: The four principles of McDonaldization

Efficiency	Efficiency is the choosing of "the optimum method for getting from one point to another" (Ritzer, 2013, p. 13). Bureaucracies attempt to increase efficiency by requiring employees (and sometimes customers) to follow steps in a predesigned process governed by organisational rules and regulations and by having managers supervise employees (and customers) to make sure they follow the rules, regulations, and process. Increasing efficiency usually entails streamlining various processes, simplifying products, and having customers do work formerly done by paid employees.
Calculability	Calculability refers to the quantitative aspects of McDonaldization (e.g., costs and the amount of time it takes to get the product). Calculability allows McDonaldized institutions to produce and obtain large amounts of things rapidly and to determine efficiency. Calculability also makes McDonaldized institutions more predictable and enhances control.
Predictability	Predictability means that products and services will be uniform everywhere and at all times; there are no surprises. For consumers, predictability provides peace of mind. Employees of the process are also predictable in their actions because of rules and supervision. For workers, predictability makes their jobs easier. To achieve predictability McDonaldized organisations stress discipline, order, systemization, formalization, routine, consistency, and methodical operation.
Control	Control involves the ability of the organisation to get employees and customers to follow the rules and regulations governing the process. In the case of employees, this is accomplished by training them to do a few things in a precise manner with managers and inspectors providing close supervision.

Source: adapted from Ritzer (2013)

The systematic exploitation of dark kitchen workers is carefully designed and subsidised by the multi-billion venture-capitalist food tech industry. The market leader Deliveroo, currently valued at £7.6 billion, operates in 11 countries, subcontracts 110,00 delivery couriers and partners with over 140,000 restaurants; the company's shareholders include sound corporate and venture capital firms like Amazon, Fidelity and DST Global (Corporate Watch, 2021). A report compiled by MP Frank Field in 2018 found some delivery couriers made as little as £2/hour while Deliveroo claims that the average earnings are £12/hour (Popan, 2021). Although there are no data available for dark kitchen workers, based on the discussion above it can be argued that their compensation hardly meets the minimum wage guidelines not to mention paid holidays or any form of allowances.

Conclusion

The sweeping changes that the Gig Economy brings to the world of work are here to stay. The emergence of new business models like the ghost kitchens is a contemporary phenomenon that was accelerated due to the COVID19 pandemic unprecedented impact to the global economy. Historically, big societal and economic changes always create winners and losers. Without any doubt the big winners are the global investors "*who are gambling millions on an app-driven, dark-kitchen dominated future*" (Shenker, 2021). On the other side an invisible work force exists, that struggles every day to make ends meet, under almost inhuman working conditions. The ethical dilemmas and the social segregation caused by the latter, calls for a detailed enquiry on this phenomenon by both academics and practitioners. Our knowledge about the working conditions in dark kitchens is limited to a few anecdotal stories in newspapers, websites and blogs. It is hoped that this paper will trigger the research community's interest for a series of in-depth studies that will identify and surface the issues related to worker exploitation in ghost kitchens.

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