# Platformization and algorithmic exclusion: iFood's territorial strategies in Belo Horizonte (state of Minas Gerais)

## Plataformização e exclusão algorítmica: estratégias territoriais do iFood em Belo Horizonte (MG)

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**Abstract**

This article discusses the recent platformization process of the food delivery sector, highlighting its territorial dimension. Initially, we addressed the globalization of the sector, its regional differences, and respective dominant corporations. Then, we analyzed the arrival of global corporations to Brazil in a context of crisis and flexibilization of labor laws, when iFood became dominant. Subsequently, using the web scraping technique, we mapped the establishments linked to iFood in the Belo Horizonte Metropolitan Area (BHMA). The results revealed the capillarization of the platform in the territory and highlighted the concentration of establishments with higher prices. Finally, we presented the algorithmic exclusion of undesirable territories through geofencing based on the case of Aglomerado da Serra, in Belo Horizonte.

**Keywords***:* platformization; digital platforms; delivery; iFood; algorithmic exclusion.

**Resumo**

*O objetivo do artigo é apresentar o recente processo de plataformização do setor de food delivery, destacando sua dimensão territorial. Inicialmente, apresenta-se a globalização do setor, suas diferenciações regionais e respectivas corporações dominantes. Em seguida, analisa-se a chegada das corporações globais na formação socioespacial brasileira em um contexto de crise e flexibilização das leis trabalhistas e a consolidação do iFood. Posteriormente, apoiando-se na técnica de web scraping, são mapeados os estabelecimentos acoplados ao iFood na Região Metropolitana de Belo Horizonte (RMBH). Os resultados revelam a capilarização da plataforma no território, destacando a concentração dos estabelecimentos com preços mais elevados. Finalmente, apresenta a exclusão algorítmica por geofencig de territórios indesejáveis, com base no caso do Aglomerado da Serra, na capital.*

**Palavras-chave:** *plataformização; plataformas digitais; delivery; iFood; exclusão algorítmica.*

# Introduction

The consolidation of a new historical conjuncture and its corresponding geographic milieu – termed the technical-scientific-informational period (Santos, 1994) – has engendered renewed modalities of capital accumulation driven by the centrality of technical automation and informational flows within contemporary productive dynamics. Over the course of the second half of the twentieth century, successive waves of productive restructuring sought to intensify the substitution of constant capital for variable capital in the organic composition of capital (Marx, 2013 [1867]), despite the persistent tendency for the rate of profit to decline.

In the wake of the most recent wave of productive restructuring within capitalism, namely, triggered by the 2008 accumulation crisis, there has been a renewed diversion of surplus capital toward big tech companies, spurred by the unprecedented advancement of telematics (Srnicek, 2016). The extraction and conversion of data into strategic information has facilitated the emergence of new capitalist configurations, embodied by corporations operating across both productive and non-productive sectors, accelerating the extraction of income from territories. What emerges, therefore, are new forms of resource drainage, including the appropriation of the creativity intrinsic to urban economies, particularly within popular and marginalized contexts, a phenomenon that Santos (2004 [1979]) had presciently described as "vampirization".

Within this context, "platform capitalism" (Srnicek, 2016) may be understood as the current economic expression of the technical-scientific-informational period, which has its roots in the post–World War II era. Over the past two decades, we have witnessed the emergence and proliferation of "platforms" capable of monopolizing, extracting, analyzing, and utilizing vast volumes of data. Individually and in their raw form, these data remain mere commonplace pieces of information (Silva, 2001), derived from human labor embedded in geographic space. As Dantas (2002, p. 142) observed, in this process, "the labor of each individual [within capitalist production] is an exercise in search: collecting, compiling, and assembling diverse data".[1] Thus, the production of information necessarily arises from these multiple dimensions of socio-spatial life. Once systematized and employed as a productive factor, strategic information (Lojkine, 1995) becomes the element that distinguishes major information technology corporations – also known as big techs. These data, generated through the use of territory, are harnessed as productive inputs to maximize corporate profitability, particularly within the delivery sector, which has become increasingly more prominent and constitutes the primary focus of this study.

In this context, the emergence may be observed of what recent literature has termed *Platformization* (Helmond, 2015) or *The Platform Society* (Van Dijck, Poell, & De Waal, 2018). Although Brazil's socio-spatial inequalities have inhibited the pace of this process when compared to elsewhere, it has nonetheless continued to expand progressively. This article adopts the definition proposed by Poell, Nieborg, and Van Dijck (2019), according to which platformization refers to "*the penetration of the infrastructures, economic processes, and governmental frameworks of platforms in different economic sectors and spheres of life*" (Poell, Nieborg, & Van Dijck, 2019, pp. 5-6. Emphasis in original). The geopolitical nuances of platformization allow for a reconfiguration

of the international division of labor in which peripheral countries are typically incorporated into subordinate roles. Within this scenario, the extraction of both revenue and data forms the foundation of what Kwet (2019) defines as "digital colonialism".

Digital platforms have thus gained historical significance as sociotechnical intermediaries, with infrastructures that enable new forms of production, distribution, consumption, and labor, thereby reshaping both cities (Langley & Leyshon, 2017) and social groups (Srnicek, 2016, p. 49). The US-based company Uber serves as a prime example of this process, leveraging control over a key innovation to create markets across diverse socio-spatial formations. In Brazil, Uber established its presence in 2014 during the World Cup, launching services in the major metropolitan areas – Rio de Janeiro, São Paulo, Belo Horizonte, and Brasília, respectively. By 2016, Uber had adopted an expansionist strategy, and by 2017, was operating in 85 cities across all the Brazilian states. Since then, it has expanded into intermediate and smaller municipalities, generally those with populations of at least 100,000, particularly in the South and Southeast regions, and by 2019 had reached 126 cities (Duarte, 2019; Tozi, 2020).

As in most countries, the delivery sector in Brazil was the second to undergo platformization (ILO, 2021), as will be discussed below. At this stage, it is important to underscore specific aspects of Brazil's socio-spatial formation that have shaped this process. Chief among these is the halt of real increases in the minimum wage following the ousting of former President Dilma Rousseff (PT) in 2016, an event that signaled the onset of economic crisis, rising unemployment, and a series of labor reforms. These developments paved the way for the proliferation of precarious forms of work arrangements and the entrenchment of "uberized" labor (Antunes, 2020; Abílio, 2020; Tozi, 2020). The Covid-19 pandemic further accelerated changes in the food delivery sector (Costa & Bezerra, 2022).

In this regard, understanding the corporate uses of territory (Santos, 1994) by platform companies becomes essential, especially in relation to the superimposition of new technical, scientific, and informational layers onto an already constituted geographic milieu. This process reconfigured the meaning of existing systems of objects and systems of actions. Space, therefore, is conceived as a combination of *dead labour* (materialities such as urban infrastructures and the built environment) and *living labour* (social actions) (Santos, 2017 [1996]). For digital platforms, particularly those in the delivery sector, control over both dimensions is fundamental.

In this domain, real-time knowledge of *living labor* and *dead labor* enables corporate strategies oriented toward the geographically differential extraction of income. This is made possible through the continuous monitoring of demand zones, service availability, the number of commercial establishments, and the delivery drivers who are online. Furthermore, and especially in the case of transport and delivery platforms, labor is always fundamentally place-based, as emphasized by Graham and Anwar (2019, p. 177), drawing on a concept originally developed by Harvey (1989, p. 19).

Thus, the "ground" of the territory emerges as an indispensable productive factor for digital platforms, whose strategies and effectiveness depend not only on digital means of production, such as algorithms, applications, and cloud-based

services. The fragmented corporate metropolis, as defined by Santos (2009 [1978]), acquires a new vector of inequality, insofar as the technical norms of digital platforms are extrapolated to the broader society, shaping forms of labor, influencing behavior, and inducing new patterns of consumption. Ultimately, this process signals the emergence of a new morphology of urbanization and urbanity.

Methodologically, this research draws on a review of the relevant literature and the analysis of documents, reports, and official websites, from which information and data were collected, such as the number of cities in which platforms operate, the number of affiliated delivery drivers, and advertising and marketing strategies, among other aspects. Between March and May 2023, fieldwork and interviews were conducted with delivery drivers and nine establishment managers, both affiliated and unaffiliated with the platforms, in neighborhoods surrounding Aglomerado da Serra in the city of Belo Horizonte.

This research also employed web scraping to construct a primary database. This method involves developing a programmed application capable of autonomously extracting data from the iFood website. In doing so, it was possible to access data from all iFood-affiliated establishments in Belo Horizonte, as well as in selected municipalities within the Metropolitan Area – thereby representing the territorial scope of analysis for this study. Data extraction was carried out on March 30, 2023.

The data points made accessible through this technique, based on the structure of the company's website, included: (a) the name of the establishment; (b) the URL of the establishment's page on the iFood platform; (c) the type of establishment (its culinary specialty, such as Italian, Brazilian, ice cream, among others); (d) the restaurant's rating; (e) the average price range as defined by the platform; (f) the address; (g) the CNPJ number (Brazil's federal tax ID number for businesses); and/or (h) whether the establishment was classified by the platform as a "Super Restaurant," a designation for businesses with consistently high consumer ratings. Data collection was conducted across all establishment categories available on iFood: Restaurants, Markets, Beverages, Pharmacies, Pet Stores, and Shopping.

From a selected reference point, the iFood platform allows users to filter establishments within a specified radius, measured in kilometers. In order to encompass the entire inhabited area of Belo Horizonte – as well as the conurbated and densely populated areas of the neighboring municipalities of Nova Lima, Ribeirão das Neves, Betim, Sabará, Santa Luzia, and Ibirité – 35 georeferenced points were defined based on regional centralities. These addresses were then entered into the iFood website to simulate order placements. A uniform search radius of 3 km was adopted, meaning that for each reference address, all establishments located within a 3-kilometre radius were included in the data collection. The extracted data were compiled into an Excel spreadsheet, enabling the verification of establishments and the manual correction of errors or duplicates. Once cleaned, the dataset was geocoded and mapped using QGIS 3.16.16, drawing on cartographic base layers provided by the Brazilian Institute for Geography and Statistics (IBGE) and the City Hall of Belo Horizonte.

In terms of structure, this text is divided into four main sections, in addition to this introduction. The first section examines the platformization of the delivery sector as part of the emerging regime of accumulation,

constituting a new digital layer within the technical-scientific-informational milieu. It discusses the rise of global corporations in the sector alongside companies operating in non-Western contexts, with particular attention to Latin America and Brazil – the country of origin of iFood. The second section focuses on the structure of the sector in Brazil, highlighting iFood's hegemonic position and its strategy of territorial capillarization.

The third section explores iFood's regional specificity within the Metropolitan Area of Belo Horizonte (MABH), drawing on empirical data obtained through web scraping. This data enabled the geolocation of restaurants across the studied area. Patterns of dispersion and concentration are analyzed to demonstrate how space functions as a productive factor for the platform, while variations in average price levels among establishments reveal intra-urban inequalities.

Lastly, the fourth section addresses the issue of algorithmic exclusion through the case study of Aglomerado da Serra, a working-class enclave located in the Central-South region of Belo Horizonte. This area is notably excluded from iFood's delivery coverage, illustrating how digital infrastructures can reproduce or exacerbate spatial marginalization.

## The platformization of the delivery sector

The practice of ready-to-eat food delivery predates the platformization process of the sector and has evolved alongside the spread and normalization of various communication technologies, such as landline telephony and mobile phones, as well as the widespread adoption of automobiles and motorcycles. Additionally, the expansion of fast-food chains, particularly in the United States (US) during the second half of the twentieth century, also played a key role in promoting the consumption of quick, low-cost meals (Rude, 2016; Schlosser, 2001). In Brazil, the delivery of meals, lunchboxes, and "disk pizza" services (telephone-based pizza delivery) were examples of everyday urban habits, typically operated by small, locally owned neighborhood establishments.

In contrast, the current landscape is characterized by the presence of corporations with national and global reach, supported by high levels of technological sophistication, capital investment, and complex organizational structures. Simultaneously, a new regionalization of countries has taken shape, driven by mergers and acquisitions grounded in clearly defined territorial bases, despite the global reach of certain economic groups. In 2013, while iFood had already been operating for two years under the name Disk Cook, the company Deliveroo was founded in London. By 2022, Deliveroo had expanded its operations beyond the United Kingdom (UK) and Ireland to include France, Italy, Belgium, Hong Kong, Singapore, the United Arab Emirates, Kuwait, and Qatar – operating in 348 cities across these countries (Deliveroo, 2023a). In addition to its core delivery platform, Deliveroo has developed subsidiaries focused on complementary services, such as "Deliveroo Editions", which manages dark kitchens[2] through a rental scheme for restaurants, and "Deliveroo HOP", which operates ghost stores for supermarket product delivery through its own app.[3]

Also in 2022, Deliveroo reported a record volume of deliveries, totaling 299 million orders – an increase of approximately 5% compared

to the previous year, despite the ongoing pandemic context and continued lockdowns in several of the cities where it operated. The company's gross profit reached 646 million GBP, representing a 29.9% increase compared to 2021. By the end of that year, the company claimed to have over 150,000 delivery drivers affiliated with its platform (Deliveroo, 2023b).

Deliveroo exemplifies how automation can serve to "save labor" while simultaneously contributing to the expansion of precarious work in core countries, where such forms of labor have traditionally been less prominent within formal economic structures. The number of formally employed workers at Deliveroo totaled 3,980, of whom 2,646 were assigned to sales, marketing, and operations; 842 to the technology sector; 460 to administrative roles; and 32 held global executive or managerial positions. These figures illustrate two distinct realities: (1) the number of formally employed staff (3,980) accounts for just 2.65% of the total number of affiliated drivers (150,000); and (2) the internal distribution of employees across the company's key operational sectors. As an austere platform (Srnicek, 2016), Deliveroo channels a significant portion of its human and financial resources into strategic areas shaped by the nature of the corporation, especially marketing and technology.

The largest company in the delivery sector within the Western context is Just Eat Takeaway.com,[4] formed in 2020 through the merger of two delivery platforms: Just Eat, founded in Denmark in 2001, and Takeaway.com, founded in the Netherlands in 2000. By 2023, the company was operating in over 100 cities across 20 countries, including Canada, the US, Spain, France, Italy, the UK, Ireland, Belgium, the Netherlands, Germany, Luxembourg, Poland, Slovakia, Austria, Switzerland, Denmark, Bulgaria, Israel, Australia, and New Zealand (Just Eat Takeaway, 2023). In 2022, Just Eat Takeaway.com reported a total of 692,000 delivery drivers affiliated with its platform – an increase of approximately 9% compared to the previous year, when the number stood at 634,000.

Conversely, in terms of delivered orders and active consumers, the company experienced a decline as pandemic-related restrictions eased. The number of orders placed in 2022 (984 million) was 9% lower than the 1.086 billion recorded in 2021. A similar trend was observed in the number of active consumers on the platform, which decreased from 99 million in 2021 to 90 million in 2022, also a 9% drop. In a context of reduced demand for deliveries and an increased supply of drivers on the platform, wait times rose, while workers' earnings tended to decrease.

It is important to highlight that in these countries, the workforce is characterized by distinct racial, ethnic, and linguistic identities, since immigrant workers predominate (Heiland & Schaupp, 2020; Altenried, 2021; Ferreira, Rodrigues, Vale, 2023). In the US, the delivery drivers affiliated with Uber Eats in the country's major and most profitable cities, such as New York, are predominantly immigrants. By employing tactics to bypass the company's technical requirements, drivers, such as Venezuelans, work long hours under exhausting conditions and receive insufficient earnings (El Tiempo Latino, 2023).

In non-Western contexts, the online retailer Jumia in Africa serves as a notable example, having established its subsidiary, Jumia Food, in 2012. By 2019, it was operating across ten countries: Morocco, Tunisia, Algeria, Senegal, Nigeria, Ghana, Ivory Coast, Uganda, Rwanda, and Kenya. In 2020, the cities with the highest

number of orders were Nairobi, in Kenya, and Lagos, in Nigeria.[5] Furthermore, the age group most likely to use delivery services was between 18 and 34 years, accounting for 71% of the total consumer base at the time (Jumia Food, 2020). In Nigeria, delivery services are largely dominated by large North American fast-food chains, such as Burger King and KFC. This pattern suggests that, similar to Brazil, the demand for delivery services is more concentrated in large, densely populated urban centers, such as Lagos.

In Southeast Asia, Foodpanda holds market dominance. Founded in 2012 in Berlin, Germany, it operates in ten Asian countries, including Laos, Cambodia, Myanmar, Thailand, the People's Republic of China (Hong Kong), the Republic of China (Taiwan), Malaysia, Singapore, Pakistan, and Bangladesh. In 2016, Foodpanda was acquired by Delivery Hero, a German multinational in the delivery sector. In 2022, Foodpanda recorded revenues of US$ 3.803 billion, making it the largest source of income for Delivery Hero globally (Delivery Hero, 2023a).

In Latin America, the platform with the widest geographical presence is PedidosYa, which operates in 15 countries - Argentina, El Salvador, Paraguay, Bolivia, Guatemala, Peru, Chile, Honduras, the Dominican Republic, Costa Rica, Nicaragua, Uruguay, Ecuador, Panama, and Venezuela – and serving more than 500 cities (Pedidos Ya, 2021). As of 2021, the company had over 35,000 affiliated drivers (La Diaria, 2021). Founded in 2009 in Uruguay, PedidosYa was acquired by the multinational Delivery Hero in 2014, which became its majority shareholder with a 70% stake. The platform operated in Brazil until 2018, under the name PedidosJá, when its operations in the country were sold to the Brazilian platform iFood. Despite the sector's global growth, PedidosYa began recording consistent financial losses from 2021 onward. These setbacks were largely attributed to competition from major international platforms, such as the US-based Uber Eats and the Chinese DiDi Food, which also operate in several of the same markets. Additionally, the company faced criticism for lowering delivery driver payments to levels below its initial projections (Diario Libre, 2023).

The following analysis of the Brazilian context reveals key specifics within a sector increasingly dominated by the global players discussed above.

## Delivery platforms in Brazil

Hegemonic across the Brazilian territory, iFood is a domestic company founded in 2011 under the name "Disk Cook", initially operating through telephone-based orders. Originating as a spin-off from the University of Campinas (Unicamp), the company secured its first investment the same year – approximately 3.1 million BRL – from a warehouse fund. The following year, iFood launched its mobile applications for Android and iOS operating systems. In 2013, Movile, a holding company focused on startup acceleration and investment, acquired the warehouse fund's stake in the company. In 2014, iFood merged with Restaurante Web, owned by the major foreign delivery company Just Eat, forming a single enterprise with an estimated market value of 1 billion BRL (G1, 2014; Duarte, 2024; Costa & Bezerra, 2022).

Over the following years, the company received numerous investments from foreign funds, particularly South African, and between 2016 and 2018, it merged with two competing

firms: SpoonRocket and Rapiddo. In 2019, it acquired a small artificial intelligence company, Hekima, based in Belo Horizonte, and in 2022, Movile bought out Just Eat's remaining shares, becoming iFood's majority shareholder. However, both Movile and iFood are subsidiaries of a major investment fund called Prosus, headquartered in Amsterdam, which is itself a subsidiary of the South African investment group Naspers, based in Cape Town. Therefore, despite its emergence as a nationally rooted company with regional operations, iFood has undergone typical processes of capitalization and financialization. These developments have rapidly positioned it as the sector leader in Brazil, while its shareholder control was no longer purely national.

Simultaneously, Brazil ceased to be part of the territorial strategies of Uber and DiDi in the food delivery sector. The Brazilian subsidiary of DiDi, 99Food, which launched in Belo Horizonte in November 2019, discontinued its delivery services in April 2023. The company shifted its focus back to the ride-hailing market (via the 99 app) and to expanding and consolidating 99Moto, the company's motorcycle taxi service. Similarly, Uber Eats - launched in Chicago in 2015 and introduced to the Brazilian market via São Paulo in December 2016, terminated its operations in the first quarter of 2022, despite having experienced a period of growth and profitability during the pandemic (Uber Technologies Inc., 2021, p. 66). Both 99Food and Uber Eats were operated by the same app-based multinational corporations that form the duopoly in Brazil's ride-hailing sector, yet they failed to establish a sustainable foothold in the food delivery segment.

iFood initially launched its operations in ten Brazilian municipalities – São Paulo, Santos, São Caetano do Sul, São Bernardo do Campo, Santo André, Guarulhos, Jundiaí, Osasco, Salvador, and Rio de Janeiro. By 2013, the platform was already operating in 123 municipalities, marking a 1,230% increase in just two years. During this period, iFood expanded into the MABH, establishing a presence in Belo Horizonte, Contagem and Santa Luzia. Between 2013 and 2017,[6] the company continued its expansion and, by the end of 2017, it was operating in 363 municipalities across all Brazilian states. This expansion was particularly concentrated in the states of São Paulo, Rio de Janeiro, Minas Gerais, and Rio Grande do Sul - collectively referred to as the "Concentrated Region".[7]

Between 2017 and 2019, iFood adopted a strategy of interiorization, expanding its operations into 1,177 municipalities with at least 50,000 inhabitants. In 2021, the platform had extended its reach to 1,734 municipalities, with significant growth in the North and Central-West regions, its new "frontier" of geographic expansion. As of 2023, iFood reported operations in 5,111 municipalities across Brazil, corresponding to 91.7% of all municipalities nationwide, revealing a highly capillarized and territorially extensive presence.

iFood's hegemony as the largest company in the food delivery sector becomes evident when contrasted with the number of municipalities served by Rappi, the second-largest company in the field. Rappi, a platform-company founded in 2015 in Bogotá, Colombia, is active in nine Latin American countries (Argentina, Chile, Costa Rica, Mexico, Uruguay, Colombia, Ecuador, Peru, and Brazil). Over the years, it has received numerous injections of capital from investment funds and firms such as Sequoia Capital, FJ Labs, Andreessen Horowitz, Y Combinator, and Tiger Global Management. Currently, Rappi is majority-controlled by the Japanese conglomerate

SoftBank, a telecommunications and internet corporation with holdings across various sectors and past investments in companies such as Uber and 99/DiDi.

Rappi's territorial expansion strategy differs from that of iFood due to its more discreet expansion, despite the company's strong capitalization. Its locational approach reflects a pattern that tends to follow the hierarchy of the Brazilian urban network. São Paulo, the principal metropolis within this urban network, was chosen as the entry point for operations in 2017. By 2018, Rappi had expanded to nine additional cities, primarily state capitals, and Campinas – one of Brazil's wealthiest cities and a key node within the Metropolitan Area of São Paulo. The selected cities included Campinas, Belo Horizonte, Rio de Janeiro, Curitiba, Porto Alegre, Recife, Fortaleza, Brasília, and Salvador, indicating a clear focus on major urban centers. Between 2018 and 2020, the company began a process of interiorization, although its operations remained heavily focused in the so-called Concentrated Region, particularly within the states of São Paulo - where its presence grew from two cities in 2018 to 25 by 2020 – and Rio de Janeiro, expanding from one to 19 cities over the same period.

In 2021, Rappi restructured its expansion strategy in response to the Covid-19 pandemic and iFood's monopoly in the sector, concentrating its efforts on the most profitable cities – those with high population and income levels – while withdrawing from less lucrative markets. However, in 2023, iFood signed a Cease and Desist Agreement (*Termo de Compromisso de Cessação* – TCC) with Brazil's Administrative Council for Economic Defence (CADE, 2023), acknowledging the company's monopolistic tendencies in the sector and imposing restrictions on its exclusivity contracts with partner establishments.[8] Following this decision, Rappi initiated a new phase of expansion in 2023, entering both unexplored cities and locations from which it had previously exited, including Porto Velho, Manaus, Boa Vista, and Macapá, among others.

Thus, the food delivery sector in Brazil is marked by a high degree of economic concentration and the hegemony of iFood, despite the presence of small and medium-sized companies operating at regional or local levels.[9] This configuration has enabled iFood to largely dictate how the sector operates, with limited diversity among economic agents. In short, the following features may be observed: 1) high intermediation fees charged to partner establishments; 2) a lack of significant fixed capital investments by the company in the cities where it operates; 3) the transfer of fixed costs to delivery drivers, who are responsible for providing their own work equipment; 4) real-time and precisely located market knowledge.

Particularly with regard to the fees applied, it should be highlighted that these constitute iFood's main mechanism for extracting income from localities. This is achieved through the payments made by partner establishments, which include monthly subscription fees, commissions on each order, and additional charges for sales processed via the app. The company offers establishments two plans: the "Basic" plan and the "Delivery" plan. In the Basic plan, iFood provides full access to the platform's infrastructure, such as an online menu, virtual assistant, and the option to select delivery areas, among other features. The commission per order is 12% of the meal's value, the app payment fee is 3.2% of the order value, and a monthly fee of 100.00 BRL is charged for establishments with monthly revenues exceeding 1,800.00 BRL.

However, the “Cloud” service, where delivery drivers are directly linked to iFood, is not included in the “Basic” plan. This service is only available in the “Delivery” plan, which includes all the features of the “Basic” plan, in addition to fraud insurance, real-time delivery tracking, and tools for managing preparation and delivery times. Under this plan, the commission per order increases to 23% of the order value, while the app payment fee remains at 3.2%, and the monthly fee increases to 130.00 BRL for revenues above 1,800.00 BRL.

The following section discusses iFood’s presence in the Metropolitan Area of Belo Horizonte, aiming to reveal how algorithmic management operates in both labor and territorial terms within a specific region, articulating urban and intra-urban scales.

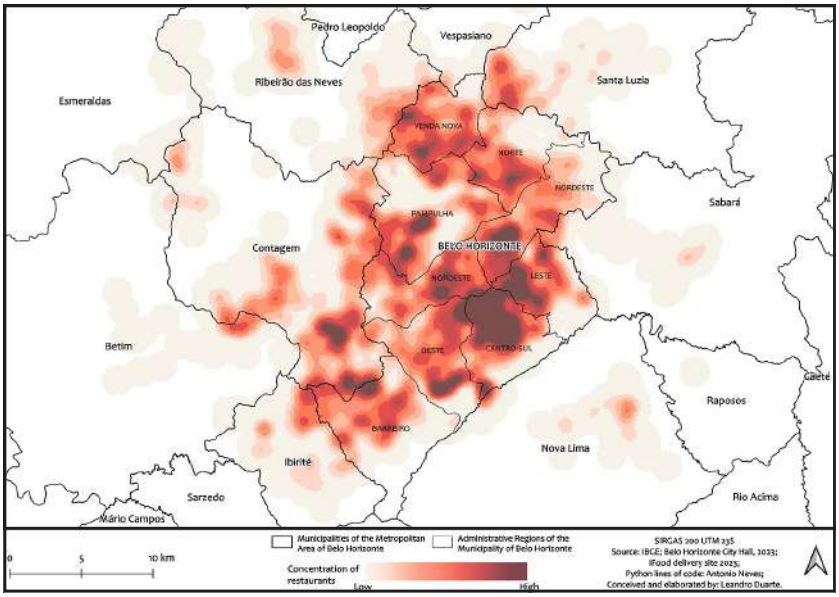
## The capillarity of iFood in the MABH

According to the 2022 Demographic Census (IBGE, 2023a), Belo Horizonte had a population of 2,315,560, ranking it as the sixth most populous city in Brazil. The urban agglomeration of the MABH forms the third largest in Brazil, with a total population of 4,963,704. In 2013, the *National Atlas of Commerce and Services*, published by the Brazilian Institute of Geography and Statistics (IBGE), identified Belo Horizonte as the leading destination for people with consumption intentions. This was due to the latent presence of intermunicipal commuting and the broader influence region of Belo Horizonte (IBGE, 2013). As such, Belo Horizonte occupies a strategic position within the political economy of Brazilian urbanization and emerged as an attractive location for digital transportation and delivery platforms, which began operating there at an early stage, as previously discussed.

Using the previously described methodology, within the defined parameters, 16,953 establishments classified under the ‘Restaurants’ category were identified on the iFood platform in 2023. This dataset provides empirical evidence of the company’s capillarity across the metropolitan area, a reach enabled by the sociotechnical intermediation inherent to platformization. However, the unequal urbanization process of the MABH, along with the disparities in population density and distribution of income and urban infrastructure, becomes evident in the spatial patterns of concentration and scarcity of establishments. As shown by the clusters illustrated in Figure 1, a significant portion of the 16,953 establishments registered under the ‘Restaurants’ category, 11,904, or 70.2%, were located in the municipality of Belo Horizonte.

The extent and distribution of iFood-affiliated restaurants reflects, with regional variations, the emergence of the fragmented corporate metropolis, a concept originally proposed by Santos (1979) for São Paulo. This pattern is characterized by urban voids and commercial and service centralities, both public and private, albeit minimal in certain areas. Thus, the territorial fragmentation of the metropolis results from the accumulation and complexity of corporate actions across the territory, to which an algorithmic use of space is added. The distinctive nature of this algorithmic usage lies in its ability to demonstrate the contemporary interaction between living labor and dead labor, based on real-time geolocated data.

Figure 1 – The density and distribution of iFood-affiliated restaurants in the Metropolitan Area of Belo Horizonte (2023)




Source: own elaboration, 2024.

In the MABH, there are varying "spatial productivities" (Santos, 2017 [1996], p. 197) associated with platformized economic activities, leading to a concentration of restaurants in certain parts of the territory shaped by its territorial "roughness", particularly in the capital. A significant cluster of these establishments is located in the Central-South Region, an area that approximately corresponds to the city originally planned by Aarão Reis and inaugurated in 1897. This part of the territory not only hosts high concentrations of income and population, but also houses key institutions such as universities, banks, financial services, hospitals, schools, company headquarters, shopping malls, museums, and other public and private geographical anchors that induce circulation and consumption. Within this area, the heat map highlights the region surrounding Avenida do Contorno, the ring road which encircles a large portion of the city's central neighborhoods are located.

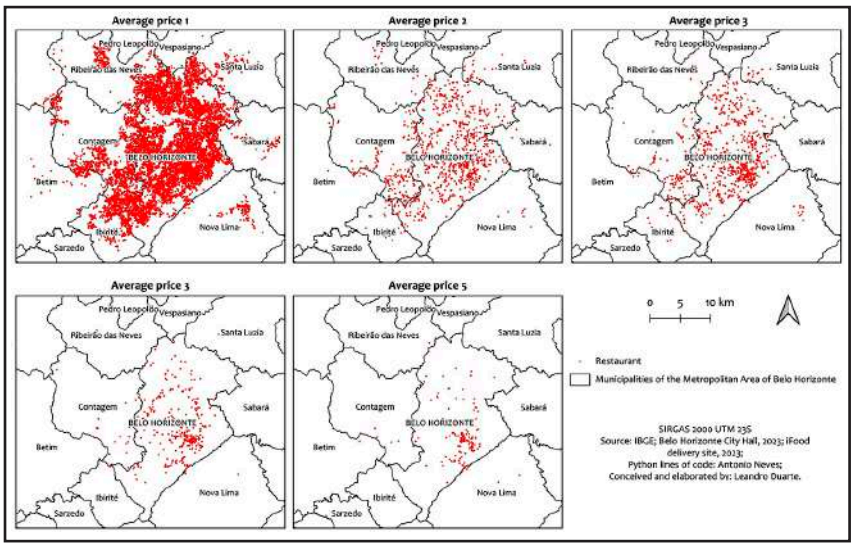
In this area, as described by Costa (1994), the densification process has been more intense, with verticalization replacing single-family homes with residential and commercial buildings. As a result, to this day, this area has remained one of the most sought-after by real estate agents. Here, the high concentration of iFood-affiliated restaurants both reflects and reinforces the concentration of the urban food economy within the municipality. However, this concentration excludes a significant portion of more popular establishments, whose organizational forms, production capacities, and technical capabilities are insufficient to integrate with the iFood platform.[10]

Thus, the restaurants located in this area benefit from their proximity to zones of high consumer demand, partially overcoming one of the main geographic obstacles to efficient food delivery within platformized services: last-mile delivery time. This process depends on a vast workforce of delivery drivers whose labor is managed remotely through just-in-time mechanisms (De Stefano, 2016; Abílio, 2020) and just-in-place coordination (Tozi; Duarte; Castanheira, 2021; Tozi, 2020). Operating within a rationale of urban logistics (Mezzadra & Neilson, 2013), the platform relies heavily on the skill of motorcycle couriers who navigate urban traffic under precarious and often hazardous conditions to fulfil the platform's promise of speed and efficiency.

The other concentration clusters presented on the map, both in the capital and in surrounding municipalities, correspond to established subcentralities. These areas serve as hubs for services and retail of intermediate complexity, functioning as preferential distribution points for ready-made food to regions with lower densities of iFood-affiliated restaurants in the rest of the metropolitan territory. As a result, a heterogeneous distribution of light red zones emerges throughout the analyzed region.

The average meal prices offered by iFood--affiliated establishments in the MABH (Figure 2) reveal a predominance of lower-priced options. Establishments with lower average prices tend to be more geographically dispersed, while those with higher average prices are more territorially concentrated. iFood classifies restaurant prices into five tiers (1 to 5), a categorization adopted in this analysis, with "1" indicating the lowest and "5" the highest average price level. However, it was not possible to assign precise monetary values in Brazilian reais (BRL) to each tier, as

Figure 2 – The distribution of iFood-affiliated restaurants by average price in selected municipalities in the Metropolitan Area of Belo Horizonte (2023)




Source: own elaboration, 2023.

the wide variety of food types and restaurant categories within each group precludes the establishment of a uniform pricing standard.

As the average price of restaurants increases, their territorial presence becomes increasingly selective. In the surveyed area, there are 14,215 level 1 restaurants, compared to 2,274 at level 2, 3,168 at level 3, 1,468 at level 4, and 894 at level 5. Even when combined, the total number of restaurants in levels 2 to 5 (7,804) falls significantly short of the number of lower-priced (level 1) restaurants, which amount to 14,215. There are nearly twice as many lower-priced establishments, with a ratio of 16 level 1 restaurants for every level 5 restaurant.

The intersection of income levels of residents in permanent private households, or the resident population in such households by the 2010 census tract[11] and the distribution of iFood-affiliated restaurants, indicates an overlap between the concentration of income and of level 5 restaurants (those with the highest average prices on the platform) in the area analyzed. Conversely, the widespread presence of lower-priced establishments across the territory corresponds with lower-income areas.

These data reveal that restaurants classified as providers of ultra-processed foods, whose menus contain a higher proportion of fried items, and foods high in sodium or sugar, are the most widespread across the territory, reinforcing the findings of Horta et al. (2020). These establishments typically offer lower-priced items such as pizza, hamburgers, and savory snacks. Conversely, healthier foods, such as vegan and vegetarian dishes and juice bars, are concentrated in higher-income areas and generally come with higher average prices. In summary, platformization reproduces existing patterns of food consumption in the metropolis: poorer individuals, residing in equally impoverished areas, have access to cheaper meals with low nutritional value, while wealthier classes, who live in similarly affluent areas, have access to more expensive meals with higher nutritional quality.

Both observations, supported by the fieldwork conducted, suggest that deliveries tend to occur within proximity to the restaurants. This indicates that iFood creates a network effect, encompassing a diverse range of establishments and consumer classes across various price tiers. On one hand, the platform facilitates access to platform-based food delivery for lower-income groups, making it more accessible among the most impoverished communities. On the other hand, it reinforces the concentration of high-priced establishments in wealthier areas through platformization. However, there are undesirable areas within the territory, as discussed below.

## Algorithmic exclusion of undesirable territories

The areas with low concentrations of establishments, as depicted on the map in Figure 1, provide a general snapshot of regions marked by socio-spatial inequalities. Among the "voids," there are locations with no housing or economic activities, environmental preservation zones, public spaces, and extensive public infrastructure. These areas therefore exhibit a correspondingly low demand for food delivery orders.

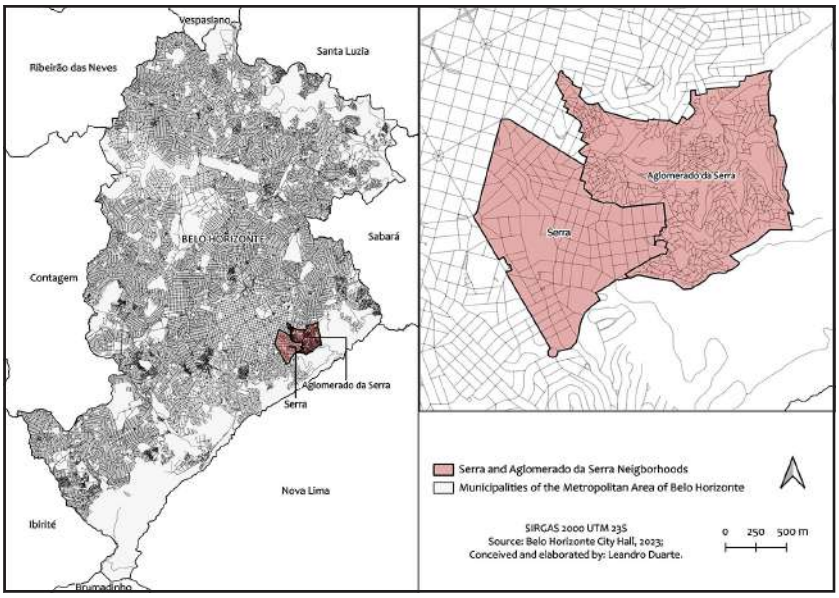
Furthermore, via the app, iFood shares information with delivery drivers regarding the hot spots in the territory, aiming to encourage workers to concentrate in these areas. In high-demand areas, special tariffs and bonuses are even offered, depending on the day and time.

There are also "extension" routes (long delivery routes) towards some of the neighboring municipalities of the MABH, such as Sabará, Santa Luzia, Ribeirão das Neves, Ibirité, Betim, Contagem, and Nova Lima.

However, during the course of the research, it became evident that there was a complete absence of publicly available information on order demand in Aglomerado da Serra, the largest favela complex in Belo Horizonte and one of the largest in Brazil. Given this finding, the study employed the company's own ordering platform to investigate: a) the difference in the type of delivery (i.e., whether deliveries were made by restaurant-employed delivery drivers or by iFood-affiliated drivers); and b) the number of establishments offering delivery services to Aglomerado da Serra.

This investigation was conducted on February 23, 2023, between 6:00 p.m. and 11:59 p.m., by simulating a food delivery order to an address located within the perimeter of Aglomerado da Serra. As a comparison point, a parallel simulation was performed for a nearby address in the Serra neighborhood, both situated in the Regional Central-South of Belo Horizonte (Figure 3). These findings were later corroborated through interviews conducted during fieldwork in the area. Although the two locations share the same name, the socioeconomic differences between them are stark, most notably the high concentration of income in Serra neighborhood. The results indicated that only 439 restaurants delivered to Aglomerado da Serra, compared to 3,745 restaurants serving the adjacent Serra neighborhood.

Figure 3 – The location of the Serra and Aglomerado da Serra neighborhoods in Belo Horizonte (2023)




Source: own elaboration, 2024.

In the "Partner Delivery" mode, with iFood-affiliated drivers, there were no establishments that allowed orders to be placed for an address located within the perimeter of Aglomerado da Serra. In contrast, the neighboring Serra district had 1,081 establishments offering this delivery option. For deliveries made directly by the establishments themselves, using in-house delivery drivers, 439 restaurants delivered to Aglomerado da Serra, while 2,664 restaurants delivered to the Serra neighborhood – six times more.

These two areas spatially intertwined (Figure 3), and the logistical choice of motorcycle delivery would encounter no significant logistical barriers in Aglomerado da Serra. This "algorithmic exclusion", as we have termed it, targets an already stigmatized area, reinforcing socio-spatial inequality through an additional informational layer – an inequality that defines the fragmented corporate metropolis previously discussed. The practice of geofencing, or "location--based fencing", operates as a form of digital geographical censorship, designating certain areas as undesirable according to the digital platform's internal rules and strategies.

It is no coincidence that this technique is employed by companies operating within what Graham and Anwar (2019, p. 184) describe as "geographically sticky work" – a category that includes food delivery and ride-hailing platforms. In the case of iFood, the platform does not allow "Partner Delivery" by affiliated drivers in Aglomerado da Serra. Similarly, Rappi excludes the area entirely, prohibiting both the delivery and pickup of orders within its boundaries (Duarte, 2024).

In the private passenger transport sector, Uber and 99 also implement geographic bans in Belo Horizonte, designating so--called "risk areas" and "dangerous areas", respectively. Upon closer investigation, these zones include a social housing complex, a peripheral neighborhood, and parts of the city's popular central area (Tozi, 2024). This suggests that moral judgments and social prejudices are embedded and reproduced through algorithmic exclusion. These cases illustrate that corporations increasingly assume a political role in the territorial governance of contemporary cities. Given the widespread adoption of platformized services across the urban fabric, such exclusions disproportionately impact populations already relegated to the margins of modernization – those with limited or no access to essential public and private services.

However, additional elements reveal an even more complex situation. Establishments that use the iFood platform – those that could in principle, serve Aglomerado da Serra using their own delivery staff – also exclude the area from their delivery range. According to nine managers interviewed between March and May 2023, this decision is primarily based on perceived risks of robbery. In contrast, fieldwork revealed that other deliveries to Aglomerado da Serra are routinely carried out through informal arrangements mediated via the messaging app WhatsApp. Notably, delivery drivers interviewed during the study reported no known incidents of robbery or assault in Aglomerado da Serra.

# Conclusions

This investigation has sought to shed light on the recent platformization of the delivery sector, framing it both as part of a broader shift in the capitalist regime of accumulation and as a new phase in the digitalization of society and territory – one marked by the expansion of the technical-scientific-informational milieu. The study identified the rapid emergence of global corporations such as Deliveroo and Just Eat Takeaway.com, as well as others stemming from dominant ride-hailing platforms, such as Uber Eats and 99Foods, the latter a subsidiary of the Chinese company DiDi.

Meanwhile, in non-Western contexts, several large internationalized companies have gained prominence, such as Jumia Food and Foodpanda. In Latin America, the Colombian company Rappi is prominent, operating in Brazil, alongside iFood – originally Brazilian, but now owned by foreign funds and corporate groups. iFood has experienced rapid growth and currently dominates the national delivery market, seemingly benefiting from its local origins, which may have granted it a more nuanced understanding of territorial dynamics and urbanization processes. In contrast, Uber and DiDi have discontinued their delivery operations in Brazil, while Rappi maintains its position as a distant second in the market.

The presence of iFood in the MABH, one of the wealthiest and most populous regions in Brazil, was assessed through the number of establishments connected to the platform, using data obtained via programmed web scraping. This methodology identified 16,953 restaurants within the study area, a figure that underscores the platform's deep integration into metropolitan everyday life. However, as this study has sought to emphasize, historical geographical conditions continue to shape the dynamics of platformization. iFood ultimately reinforces pre--existing socio-spatial inequalities, evident in the concentration of higher-priced restaurants in more affluent areas and the widespread availability of lower-priced establishments offering ultra-processed food across the rest of the area.

Beyond managing labor, iFood actively regionalizes the metropolitan area through its algorithms. The company holds detailed knowledge of zones with varying levels of order demand in the MABH and leverages this data to strategically mobilize delivery drivers via promotional incentives to respond to fluctuations in demand. However, this algorithmic orchestration often results in a surplus of couriers relative to the number of available orders, leaving many workers idle for extended periods. This imbalance highlights the persistent precarities and systemic injustices embedded in the gig economy model.

The cartographies presented reveals the deep reliance of innovative, technological, and self-proclaimed "digital" sectors on historically shaped territory, alongside the inertia of urban materialities in areas that claim to be "disruptive". The concentration of establishments in the MABH, as presented in Figure 1, not only reflects the population and income concentration of the capital relative to its immediate periphery but also signals the renewal of the territorial division of labor in the region. Revisiting the Marxian dialectic between productive phases, a more complex relationship between production, distribution, and consumption emerges, with its phenomenological dimension manifested in

circulation: the profusion of motorcyclists with delivery bags navigating urban infrastructures to satisfy evolving consumption pattern.

The political role of the corporation was discussed through the use of geofencing which algorithmically excludes Aglomerado da Serra, a community in the Regional Central--South of the city, where orders cannot be placed. A comparison with the adjacent Serra neighborhood revealed the correlation between the algorithmic management of labor and territorial organization. An extension of this research could explore the relationship of potential residents of Aglomerado da Serra who work as iFood delivery drivers. How do they navigate the territory between the "ground" of Aglomerado and the "cloud" of the platform? How do they reconcile the fact that orders cannot be placed from their own homes on the same platform they use to deliver food to other parts of the city? Such an investigation could provide valuable insights into the subjective dimensions of uberization, beyond those related to the algorithmic management of labor, as discussed herein. Therefore, we argue that fieldwork and interviews could reveal the fractures within the rationalized space of platforms.

In terms of the methodology used, it is crucial to note that web scraping enabled the capture of empirical manifestations of platformization in the technical-scientific--informational environment. The creation of a primary database and its systematic replication proved essential, given the lack of data provided by delivery companies. Repeating this methodology requires careful consideration of the large number of establishments and the significant selection of collection points and their coverage radius. This study found that radii greater than 3 km compromised the accuracy of data scraping, leading to failures. It is important to stress that the availability of data by platforms to researchers is crucial for scientific inquiry and the informed planning of territory and mobility by municipal authorities and planning agencies.

Lastly, among the potential avenues for further research, we highlight the importance of broadening the debate on the social values embedded in the practices of digital delivery and transportation platforms, which often serve to exclude certain populations from their coverage area, as evidenced in the case of Aglomerado da Serra. In an era when circulation is a critical imperative, depriving services to certain populations, while others benefit, call for a broader political debate. Such exclusion should not be reduced to a unilateral corporate decision, but rather be understood as a pernicious practice that warrants scrutiny and action.

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# Notes

(1) This and all other non-English citations hereafter have been translated by the authors.

(2) Dark or ghost kitchens are establishments, or clusters of establishments, dedicated exclusively to food production for delivery services. Their organizational structure and operational characteristics are more industrial in nature than those of traditional restaurants, which typically include dining rooms, tables, and on-site customers (Graças et al., 2024). Among the various disruptions they introduce into the urban fabric is the transformation of the city into a distribution hub (Tozi, 2023).

(3) The two largest delivery companies in Brazil emulate Deliveroo in their adoption of ghost store models, as seen in initiatives such as iFood Express and Rappi Turbo Fresh.

(4) Until 2022, Just Eat was one of the shareholders of the largest delivery company operating in Brazil, holding a 33% stake in iFood.

(5) They are, respectively, the fourth and first largest cities on the African continent.

(6) The information regarding iFood's operations in Brazil in 2019 is based on the work of Mello (2020), who kindly provided the research data, for which the authors are grateful.

(7) The “Concentrated Region”, as defined by Santos and Silveira (2001), refers to the portion of the national territory where the technical-scientific-informational environment is most homogeneous, broadly corresponding to the South and Southeast regions of Brazil.

(8) According to CADE, “there are indications that iFood is abusing its dominant market position by imposing exclusivity agreements on restaurants registered on the platform [...]. Such practices may be raising barriers to entry for new competitors in the market and could have exclusionary effects” (CADE, 2023).

(9) Among the local and regional delivery platforms, the most prominent are Plus Delivery (operating predominantly in the state of Espírito Santo), ToNoLucro (mainly in the state of Tocantins), UaiRango (mainly in the southern region of the state of Minas Gerais), Pedidos 10 (mainly in the state of Santa Catarina), and Pede.aí (mainly across the states of Brazil’s Northeast Region).

(10) The more popular forms of food provision, according to Antipon and Cataia (2018), whether small adaptive establishments, kiosk structures, or vehicles equipped with compact kitchens, are linked to the popular flows of the city, which shift throughout the day and across different times of the year. The survey developed here, therefore, does not capture this dimension of urban food provision.

(11) This refers to the smallest available division of spatial data. The year 2010 remains the most recent dataset provided by IBGE.

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