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The Future of Work(ers) Research Project
SCIS Working Paper | Number 37

The impact of digital labour platforms on the working conditions of food couriers in Rio de Janeiro

Lucas Santos Souza| *August 2022*

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About the Southern Centre for Inequality Studies:

The Southern Centre for Inequality Studies (SCIS) is the first research institute of its kind in the global South. It draws on the intellectual resources of the University of the Witwatersrand and partner institutions in South Africa and beyond, to host an interdisciplinary research and policy project focused on understanding and addressing inequality in the global South.

The Future of Work(ers) Research Project explores how digital technologies are reshaping the world of work and the impact of these changes on inequality. It conceives of the development and application of digital technologies as a contested terrain. It is particularly interested in how collectives of workers are shaping which digital technologies are developed, how and to what end; and the economic and social policies that have been leveraged in response.

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Abstract:

The incorporation of new technologies into the world of work has been the subject of numerous studies, with the digitalisation and platformisation of work gaining increasing attention. The aim of this article is explore the profile and working conditions of food couriers in Rio de Janeiro, paying attention to their professional trajectories and individual and collective experiences. I conducted 500 surveys with food couriers in the second half of 2021, followed by 100 semi-structured interviews. Survey questions focused on basic demographic information (age, gender, education and so on), the labour process and conditions of work, work identities and aspirations. Through discussion of the quantitative results of the research, the experiences of food couriers and the debate in the literature on the subject, I argue that the structural precariousness of the category has gained a new impulse with the current low incomes and extensive working hours, as well as a diversification in the composition of the category. The paper identifies three groups of food couriers, based on their experiences and expectations, despite them often sharing similar working conditions. The first group includes those who worked as food couriers before the existence of delivery apps, who have more visibly attempted to resist the platformisation process, and have a certain "culture" of their own. The second group refers to those who are in courier services as a temporary job, as an alternative to unemployment, and who generally aspire to return to their former activities. The third group contemplates those whose first job is in platformised deliveries. This younger group seems to see an extremely precarious job as normal, although they intend to work in another profession in the future. Thus this article is interested in pointing out some continuities and ruptures in the activity of food couriers in Rio de Janeiro after the arrival of digital platforms.

Key words: Food couriers, platformisation, precarisation, Brazil

Introduction

The world of work has been undergoing major transformation in recent decades. Among the main changes that have affected both the global North and South – albeit differently – is the phenomenon of labour digitalisation (Kuek et al., 2015). With the expansion of information and communication technologies, past forms of precarious labour – characterised by unregulated, uncertain and insecure work (Codagnone, 2019) – have taken on new contours (Antunes, 2018). However, as Couldry and Meijas (2019) point out, capital's use of technological innovation to increase labour exploitation is nothing new. It is then worth reflecting on what is new in the intersection of labour digitalisation with precarisation. Namely, what is the profile of workers on digital labour platforms? What are the conditions of work and how have historic patterns of precarity taken on new features with technological advances? How do workers' experiences on digital labour platforms inform their aspirations and expectations for the future?

To answer these questions, I conducted 500 surveys and 100 semi-structured interviews with food couriers in in Rio de Janeiro, Brazil. I opted to focus on food couriers, given their prominence on digital labour platforms globally (Nieborg & Poell, 2018). Data was collected in August, September and October 2021 at twelve "waiting points" across Rio de Janeiro, including squares near restaurants and shopping mall car parks, where many riders wait for delivery calls. The survey was done with all food courier found in these spaces, while the interviewees were chosen from those who met one of the following criteria: people under 18 years old; those who had worked for longer than five years in deliveries; women; those who appeared to be dissatisfied with their working conditions. The research contributes to a growing body of literature on the impact of platformisation on workers' everyday lives (Abílio et al., 2020). These results, when related to the history of the food couriers in the pre-digital era and the digitisation process of this group, allow us to present more precise answers to the questions raised in the research. This paper is divided into five parts. The first section will provide a conceptual framework for understanding the digitalisation of food delivery work, with a focus on delivery apps in the global South. The second section will locate the life stories of food couriers within an analysis of informality and the proliferation of digital labour platforms in Brazil. The third section will profile food couriers and their working conditions, aspirations and expectations for the future. I argue that food couriers, who were already involved in an activity marked by precarity, experienced worsening working conditions with the platformisation of work.

New technologies and labour precarisation

There is significant debate about the impact of digital technologies on work and inequality. Antunes (2019) argues that digital technologies can widen the gap between a shrinking minority of qualified workers and a growing precariat (Antunes, 2019: 34).

The rise of the platform economy with the proliferation of digitalisation is one such example. Across the globe, digital platforms have enabled the so-called "Uberisation" of work, through the misclassification of workers as own-account entrepreneurs. Digital platforms often identify as technology companies and have managed to evade the legal formalisation of employment relationships between the company and the person performing the task. The Uberisation of work has drastic consequences for workers, including low salaries, long working hours, the absence of social and occupational health and safety protections, and a range of guarantees won by the proletariat a long history of struggle (Chesalina, 2018). The downward trend in working conditions affects a diverse profile of workers on digital platforms across the global North and South (Farrel & Greig, 2016), and tends to expand as a new form of labour management (Abílio, 2020). However, as De Stefano (2016) points out, there is plurality of platform work. "Crowdwork" usually refers to working activities that imply completing a series of tasks through online platforms, while "on-demand work via apps" is a form of work where the execution of activities is channelled through apps managed by firms which unilaterally establish the standards of work and management of the workforce (De Stefano, 2016: 1). Food delivery apps are an example of the latter.

The increase in activities performed via platforms is related to two trends. The first is the development and expansion of people's connectivity via the internet. The second is the growth of unemployment and underemployment across much of the globe in the twenty-first century. This has meant that platform work, despite being marked by precarity and low earnings, found fertile ground for expansion (Graham et. al., 2017: 135). Moreover, high quality connectivity has allowed for even fiercer global competition amongst those who perform certain forms of crowdwork, which has put downward pressure on wages and widened inequality in earnings across geographical locations (Graham et. al., 2017: 143). In this way, technological advances have facilitated the degradation of work.

However, we must remember that the rise of digital platforms is embedded within a longer history of labour precarisation, driven by decades of neoliberal policies involving the flexibilisation of labour organisation, roll back of labour rights, liberalisation of the economy, and deregulation of financial and investment flows (Abílio, 2019:

112). The platformisation of work is simply deepening existing historical processes of informalisation and degradation of working conditions.

Locating food couriers within the Brazilian labour market

It is useful to contextualise the historical trajectories of food couriers in an analysis of the Brazilian labour market in the twenty-first century. For Braga (2012), technological advances at the turn of the millennium facilitated corporate outsourcing, neoliberal privatisation and the financialisation of work (Braga, 2012: 187). It is worth noting that the transformations of capitalism already pointed to a certain change in the composition of the working class, which in Braga's thesis is synthesised in the profile of the "post-Fordist and peripheral precariat" (Braga, 2012: 187). The economic and social changes in Brazil since the 1990s – related to the country's alignment with the imperatives of capitalism after the crisis of the welfare state – led to a new morphology of the Brazilian working class (Antunes, 2009). Thus the neoliberalisation of the economy and deregulation of the labour market already indicated the degradation of the working conditions of the Brazilian proletariat.

In his analysis of work dynamics in Brazil, Druck (2011) highlights that the current precariousness of work is a new and an old phenomenon. Although precarity is part of the long history of the proletariat, there are different ways in which it presents itself today. This new configuration, alongside the transition from the twentieth to the twenty-first century, is marked by the generalisation of instability and social insecurity, in addition to an increase in competition among workers, which forces the fragmentation of their collectives in a political and economic process justified by the need to adapt Brazil to the new times globally (Druck, 2011). Following this path of thinking about the relationship of new forms to old contents, Antunes (2019) points out that the new morphology of labour, so visibly marked by its precarious character, needs to be understood through the historical process of proletarianisation. In other words, to talk about the working class in Brazil, it is necessary to consider the centuries of colonial slavery and the particularities of the process of abolition of slave labour in relation to the emergence of the local proletariat, which have made precariousness the norm rather than an exception (Antunes, 2019: 34). This historical process shaped the current configurations of the Brazilian proletariat. Mattos (2019) echoes this position, and highlights that informality, unemployment and underemployment need to be taken into consideration when analysing the recent trends in the labour market (Mattos, 2019: 85).

Food couriers in the pre-digital era

In order to analyse the impact of apps on the activity of delivery workers, we need to take into account the dynamics and content of digitalisation in the local context of the labour market in Brazil. Before looking at how the process of platformisation of delivery activity took place in the country, it is worth repeating some of the trajectory of food couriers in the pre-digital era.

The 1980s and 1990s are usually defined in the literature as the moment when "motoboys"[1] appear in Rio de Janeiro and São Paulo (Barbaric, 2016; Oliveira, 2003; Silva, 2009). Santos (2010) points out that motoboys appear as an improvement of another set of workers, the "office-boys". The office-boys – often composed of men between 14 and 21 years old – had the function of delivering documents over short distances in the business centres of the capital cities, mainly on foot. It is worth noting that this is still an activity performed by young people and teenagers, and informality is one of its constituent features (Fischer et al. 2003).

Focusing on São Paulo, Targino and Gomes (2011) point out that the rise of motoboys at the end of the last century is related to the "speed and mobility of the motorcycle to circulate on congested streets; low cost to purchase the vehicle; ease of getting informal work; and lack of rules alluding to circulation on the streets" (Targino & Gomes, 2011: 205). Thus the speed required to deliver documents may have helped the proliferation of the activity in a period when new technologies began to be adopted by companies, coupled with demands for document signatures to be collected more quickly and an increase in the number of banking transactions in a context of economic modernisation (Moraes, 2008: 117). Therefore, the office-boy could no longer cope with the new demands of business centres in large cities: there seems to be a relationship between the neoliberal modernisation of Brazilian urban centres and the emergence and expansion of motoboys (Silva, 2009: 42).

I have pointed out that informality is a feature of the Brazilian working class, and, in the case of food couriers, this appears in a decisive way (Moraes et al., 2015; Silva, 2006; Silva, 2009). The absence of systematic quantitative studies on motoboys in Brazil before the apps (Souza, forthcoming) makes it difficult to draw an accurate picture of the formality/informality relationship in the group. In the case of this research, of the 50 motoboys interviewed who began the work in the pre-digital era, 30 had worked at some point with an employment contract. But this was not always continuous: 41 of the 50 had been working in the delivery business informally: that is, less than 20% of them have always had an employment contract while working.

[1] This is the term by which delivery drivers on motorcycles are known in Brazil, a fundamental work category in the overall composition of app food couriers.

In short, before the beginning of the digitalisation of deliveries, motoboys had consolidated as a category and spread throughout the main cities of Brazil. The context of economic transformation of the main urban centres in the country from the 1990s onwards favoured the proliferation of this activity, allowing one to speak of a motoboy ethos with its own culture (Santos, 2010) and characteristic language (Silva, 2010). Despite state regulation, informality appeared as a fundamental feature of these workers.

The digitalisation of food delivery services

In the survey of 500 food couriers in Rio de Janeiro, I mapped the main apps used by respondents. The most cited apps (Table 1) were Brazilian iFood (79.6%), followed by UberEats (25.4%), Rappi (23.4%) and Loggi (9.2%). Note that couriers can use more than one application at the same time. Other smaller ones added up to less than 1% of the total responses. Table 2 shows how many food couriers used a particular app and how many made deliveries using that app exclusively.

Table 1: Number and percent of respondents by app in Rio de Janeiro, 2021

Platform	ifood	Uber Eats	Rappi	Loggi
Number	398	127	117	46
Percentage	79.6%	25.4%	23.4%	9.2%

Source: survey.

Table 2: Relationship between the platforms and their exclusive use

Platform	Use	Exclusive use
ifood	398	224
Uber Eats	127	26
Rappi	117	19
Loggi	46	7

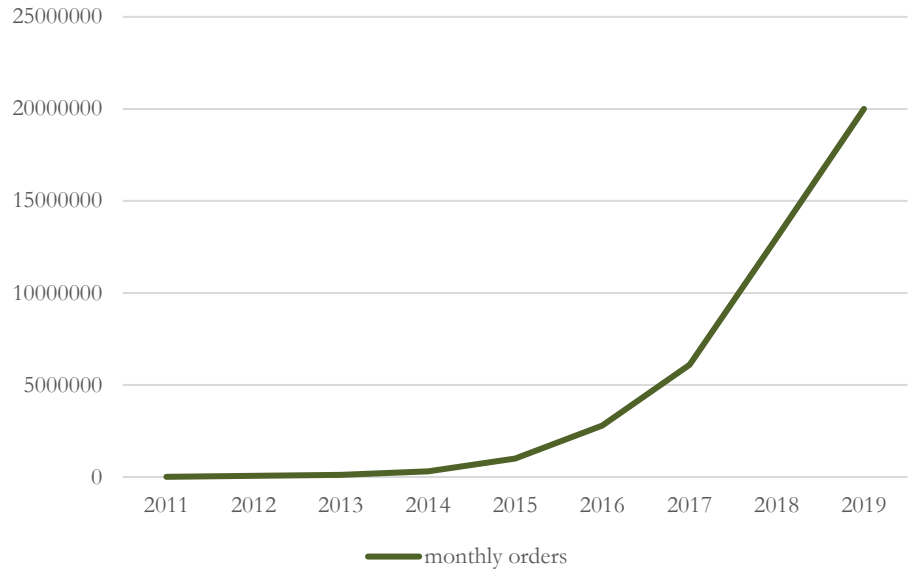
Source: survey.

The dominance of iFood reflects the historical dynamics of digitalisation of food delivery and market performance under "platform capitalism" (Srnicek, 2016). In 2011, the delivery company Disk Cook began to work in a different way. Since 1997 it had operated with printed leaflets containing the menus of restaurants in São Paulo,

and customers placed their orders by calling the company's central office. From there, the orders would be sent to the restaurants, and the restaurants were then totally responsible for preparation and delivery. In the second decade of the 2000s, there was first a large financial contribution from an investment fund followed by a name change, and the company started to operate through a website instead of a telephone centre, with the launch of the application the following year[2]. Until then, iFood's role remained the same as Disk Cook's – centralising consumer information and redistributing it to restaurants – but now by digital means.

From then on, the company's expansion was accentuated, with more investment from financial groups. In 2013, another investment fund bought the company for R$5.5 million, and the strategy became acquisitions of small regional companies in the sector (Bretas, 2018). Without further name changes, the company went through other mergers, and its market value in the year 2018 was announced at more than US$1 billion. To understand some of this movement, Figure 1 below shows the evolution in the number of monthly orders from 2011 to 2019, a period in which orders rose from 12 000 to two million.

Figure 1: Growth in iFood's monthly orders



Source: survey.

Slee (2016), in his considerations about this branch of the economy, argues that "technology industries are often a 'winner takes all' market, in which the leading firm has significant market power" (Slee, 2016: 147). This relates to some particularities of this field, with a strong emphasis on the use of algorithms and data warehousing.

[2] *Distrito*. Último fundador do iFood a vender sua participação na empresa, Guilherme Bonifácio revela bastidores da jornada. 18 February 2020.

This particularity makes it easier to understand one of the reasons that iFood became the largest of the companies in this industry.

The arrival of UberEats in Brazil in 2016 is enlightening. The company had a system distinct from iFood's, because, since its inception, it operated as a so-called full service. Unlike its main competitor, Uber's "partner" couriers are responsible for picking up, delivering and charging for the food. In other words, the restaurant receives the order and just has to get it ready for pickup. With the arrival of UberEats, iFood started to use its own delivery drivers and to perform the same type of service. Thus it is at the moment when companies become responsible for having exclusive relationships with the workers – without them having ties to the restaurants – that I consider the platformisation of deliveries to be fully in place. Although iFood was the first (and, very much because of this, the largest) food delivery platform in Brazil, it was Uber's arrival that materialised the digitalisation of delivery services in the country.

The heterogeneity of food couriers

The first and fundamental observation about food couriers in Rio de Janeiro is their heterogeneity. I proposed three categories of food couriers based on their work histories, profiles and aspirations. Note that 41 couriers (8.2%) did not fit into any of the groups.

The first group was those who were already working in deliveries before 2016, when the digitalisation of food delivery services took place. In other words, they were food couriers who experienced the impact of the arrival of platforms on their daily working lives. This group accounted for less than 20% of respondents. All were men and more than 90% were bikers; 13% of respondents from this first group still did not use apps but had a work contract or worked informally for a daily wage.

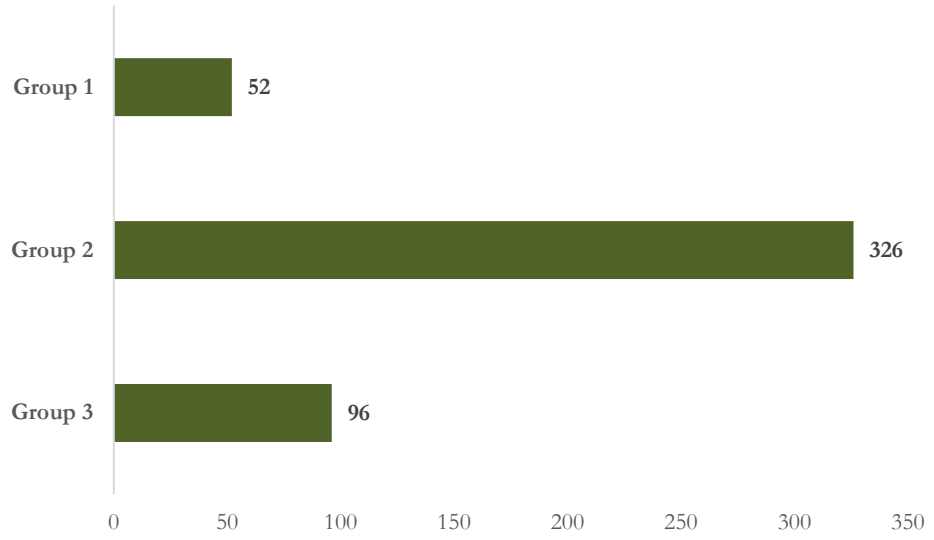
The second and most numerous group were those who migrated from a previous activity to delivery services after the arrival of the apps. Most couriers in this group lost their jobs and started working in the delivery business after it was already platformised. The Covid-19 pandemic catalysed a process already underway, but it is worth noting that 24% of respondents in this group were food couriers before the pandemic.

The third group were those who joined the app as their first employment experience. They were a little more than 10% of the total, and this group was very particular. The average age of these food couriers was 22, well below the general average of 29. Regarding race and gender, the values were close to the general average: 4% were women and 96% men, and 21.2% white and 78.8% black. Another major specificity of this group was the ratio of

bicycles to motorcycles, with half using each vehicle, compared to the general tendency of 70.2% using motorbikes and 29.8% with bicycles. Almost 85% of this group joined during the pandemic.

Figure 2 shows the size of each group amongst the surveyed. The most common category is Group 2, followed by Group 1 and then Group 3.

Figure 2: Number of couriers belonging to each of the three groups



Source: survey.

The next section explores the heterogeneity of food couriers through an analysis of their demographic profiles, conditions of work and aspirations. Similar working conditions and profiles do not generate the same aspirations for the job market. While Group 1, for example, fitted in as "motoboy by profession" despite the new dynamics that the applications have introduced, the second ended up taking up the activity "for lack of options", to use the words of the interviewees themselves. In the case of Groups 2 and 3, I observed similar working conditions in terms of the average number of days and hours worked. The ways, therefore, in which they were exploited and experienced daily life were similar, but the accounts collected revealed different expectations. In fact, it is even possible to say that there were points of convergence between the third group and the first group, fundamentally in relation to the fact that they entered the activity on their own initiative. However, there was a desire in Group 3 to use this "easy way" of entering the job market to later "start it in another area".

Thus it is possible to see significant nuances within the category of delivery app drivers. The high turnover could certainly interfere with the composition of each of the groups, but each of the aspects seems to me to be an element that contributes to the reading and analysis of the process of platformisation of deliveries in Rio de Janeiro. After all, the pre-application trajectory itself had an important role in the way the food couriers viewed the activity.

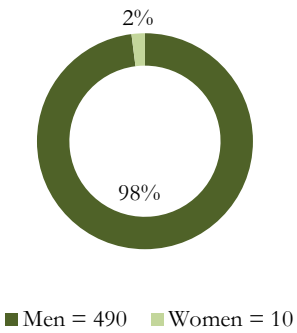
Profile, conditions of work and aspirations of food couriers in Rio de Janeiro

The profile of delivery workers

Gender

Regarding the gender ratio, it is important to note that the delivery profession in Brazil is historically male-dominated (Barbaric, 2016). This certainly helps to understand the low ratio of women, which is displayed in Figure 3. However, a number of other factors account for this gender gap. Of the ten women who answered our survey, only three were with the group of delivery people waiting for new orders; these groups were almost always male. The other seven were waiting for calls a little apart, with no interaction with other colleagues. The reasons for this may not always be the same, but Fernanda, 27, when asked about it, stated that she preferred to "stay a little further away" (Fernanda interview, 2021)[3]. When asked about the harassment suffered during deliveries, she raised key points to understand the gender dynamics involved in this work environment: "It comes from everywhere. It's customers, restaurant employees, mall security guards ... Even colleagues sometimes don't know how to respect. Sometimes they think that because they tip you they can say whatever they want" (Fernanda interview, 2021)[4]. Cant (2019), in a book on food couriers in England, reports exactly the same phenomenon when commenting on the difficulty of finding women for his research, and indicates harassment as the reason (Cant, 2019). There are also other gender issues that can be mentioned, such as problems related to the male standard for the design of the delivery bag provided by the platforms.

Figure 3: Distribution of couriers by gender



Source: survey.

[3] Interview with Fernanda, woman delivery driver (24 September 2021).
[4] Interview with Fernanda, woman delivery driver (24 September 2021).

Therefore, the male history of the activity helps to explain why only 2% of respondents were women. iFood disclosed that, among its 170 000 partners, only 1.8% are women (Soupin, 2020) – a ratio very close to that found in my research.

Race

Before I present the results about the data on "race", it is important to note the following. In Brazil, the racial categorisation is obtained by self-declaration, and black Brazilians comprise the sum of "black" and "brown". In Rio de Janeiro 51.7% of the population is black, and 47.4% of the population is white (IBGE, 2012). Activities that involve informality and precariousness tend to have a higher proportion of black workers than white workers. This was the case in our survey. Just more than half of the delivery men identified as "brown", a quarter as "white" and a quarter as "black". In other words, for every four food couriers, three are black, as shown in Table 3.

Table 3: Number and percentage of food couriers by race

	Men		Women		General	
	Number	%	Number	%	Number	%
black or brown	363	74.1	6	60	369	73.8
White	127	25.9	4	40	131	26.2

Source: survey.

Being a black courier in Rio de Janeiro has its own peculiarities. If there are no great differences in income between black and white workers, as will be seen in the next section, racial discrimination appears in other ways. In a mall in Rio de Janeiro, while I was asking questions of a group of young delivery men – all black - a policeman walked from one to another asking for the workers' identity documents. After checking the data in the system for possible arrest warrants, the procedure was the same: with the documents in hand, he asked questions about the information on the IDs, such as the mother's name, the date of birth and so on. This made me ask more questions in the interviews about the daily life of food couriers in relation to police repression, and I could see how this type of precarious work is fraught with racial tensions.

Narrating a regular day of deliveries, Rogério, 18, said that police interventions such as the one described were common (Rogério interview, 2021)[5]. He had even had problems with his bicycle. One night while he was working, police officers stopped him, and stayed with him "for almost an hour," checking to see if there were any reports of a stolen bike in the area. It was no use presenting his account on the application "with more than eight

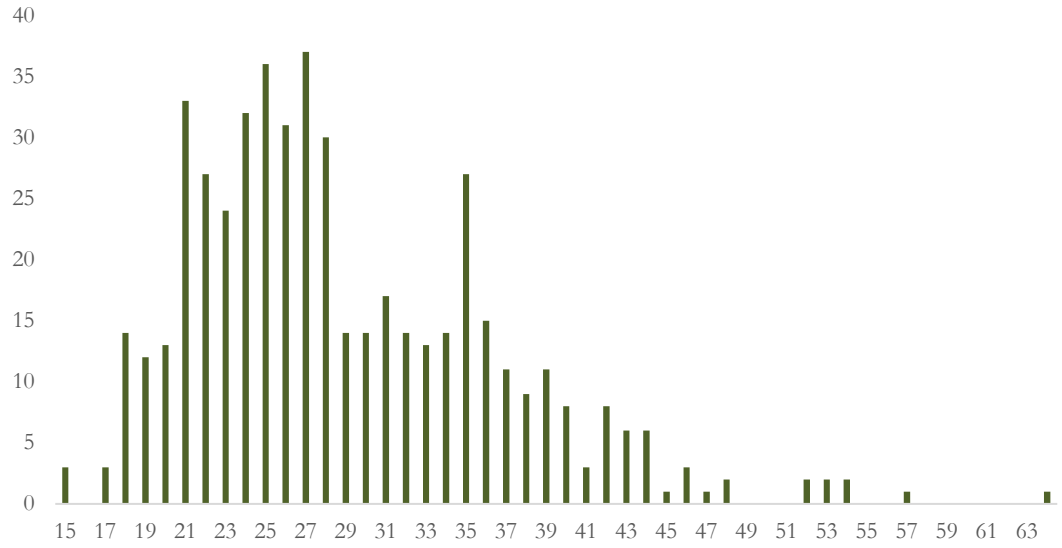
[5] Interview with Rogério, 18-year-old black courier who has been delivering for almost nine months. (27 August 2021).

months of activity". Because of this episode, Rogério missed a delivery, and, as a consequence, his score on the app decreased. His co-worker, Kelvin, narrated a similar case, and claimed that he was only "released after the cops verified that he had no criminal record" (Kelvin interview, 2021)[6]. It is worth remembering that Rio de Janeiro is a city marked by government violence against black people (Junior, 2020).

Age

Given that motorcycle couriering is historically dominated by young people (Barbaric, 2016; Moraes, 2008), it is interesting to investigate whether the apps have introduced changes in ages. Overall, the average in the survey was 28.8 years old, 25.8 for cyclists and 30.1 for motorcyclists. But these results can be better understood by looking at the distribution across the 500 couriers. As can be seen in Figure 4, there was a large concentration of food couriers between the ages of 21 and 28. This group comprised exactly 50% of the total.

Figure 4: Distribution of the number of couriers by age



Source: survey.

Thus, despite the average age of 29, food couriers in the survey were concentrated in the age range 21 to 28, which reinforces a picture of the youthfulness of the group. But it is still necessary to evaluate the extremes. On the one hand, note the appearance of delivery people under the age of 18 who rent third-party accounts in order to perform – the platforms do not allow participation at this age. On the other hand, I noticed people older than 50, which does not seem to be common in the occupation. The context of the pandemic and the ease of entry via platforms certainly contributed to this.

[6] Interview with Kelvin, 20 year old black courier (27 August 2021).

Schooling

It is essential to contextualise the level of schooling in Rio de Janeiro before presenting the data about delivery workers. The last census, conducted in 2010, reported levels of schooling for the population over ten years old. In order to make a comparison possible, some questions from our research were adapted for Table 4. From this data we can see that there was a significant discrepancy at the extremities. Our survey found a higher concentration in high school, and few who had not completed middle school or who had completed college. Table 4 helps us understand which type of worker we are referring to.

Table 4: Schooling of couriers comparing survey with census

	Our survey %	Census 2010 %
Middle school incomplete	5.6	34.1
Middle school complete and high school incomplete	31.4	18.3
High school complete and college incomplete	62.6	30.5
College complete	0.4	16.5

Source: survey.

It is interesting to note that many of the interviewees were in progress with their studies. Giovani was attending the ninth period of law school at the time of the interview (Giovani interview, 2021)[7]. Combining work and study, the 23-year-old worked from 11am. to 10pm, Monday to Saturday. The delivery man said that the pandemic had changed his routine. When his classes changed to remote learning, Giovani, who had left college in 2019, resumed his studies, and was able to watch the class videos "when he doesn't have many deliveries to make".

A similar case is Michel, 18. He also took advantage of remote classes and started working outside a shopping mall from 10.30 am until 10pm. Although his classes were recorded, the young delivery man said that "I am not able to follow the videos" (Michel interview, 2021)[8]. Michel had been making deliveries for four months at the time of the interview, and he started because of a recommendation from a classmate at his school. He also told us that about ten other students from the same school would be delivering at the same time as him.

From these reports we can see that the pandemic affected the life dynamics of some young people. At the same time that it inserted different realities into an extremely precarious sector of the labour market, it tended to disrupt the various study routines.

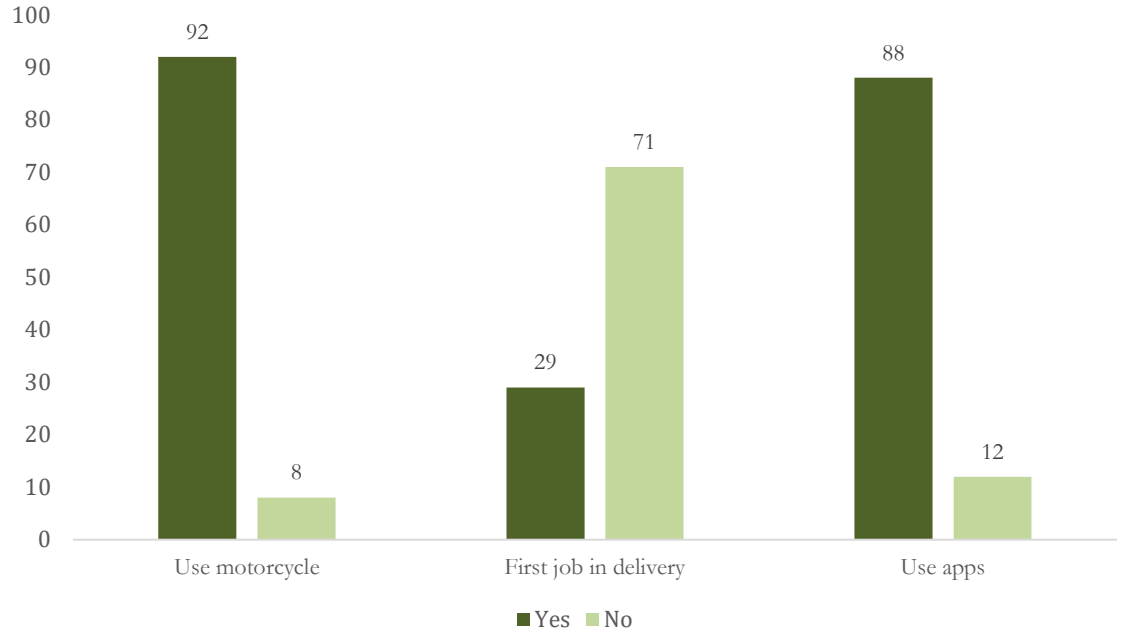
[7] Interview with Giovani, 23 year old white courier and law student (9 September 2021).
[8] Interview with Michel, 18 year old black courier and high school student (21 August 2021).

Life histories and former professions

To conclude this profile of the couriers, I will present data on how long the couriers had worked in the occupation. Looking at these numbers from the point of view of the intersections between gender and precariousness, we have an important question to explore. There were women working as delivery drivers before 2015, but I want to call attention to a deepening in the process of labour precarisation with the arrival of the apps and the subsequent platformisation of the food couriers. As has occurred in the world of work in general (Nogueira, 2004), one of the hallmarks of this movement to precarity is the feminisation of the workforce. This also seems to be the case with deliveries.

It is of great value to the research to know how many couriers had directly experienced the phenomenon of work platformisation. Here I am referring to the already-mentioned Group 1, who stated in the survey that they did not start deliveries via apps. Let's look first, then, at this group that had been operating before 2016. Figure 5 illustrates information about that category.

Figure 5: Characteristics of couriers who have been working for more than 7 years (percentages)

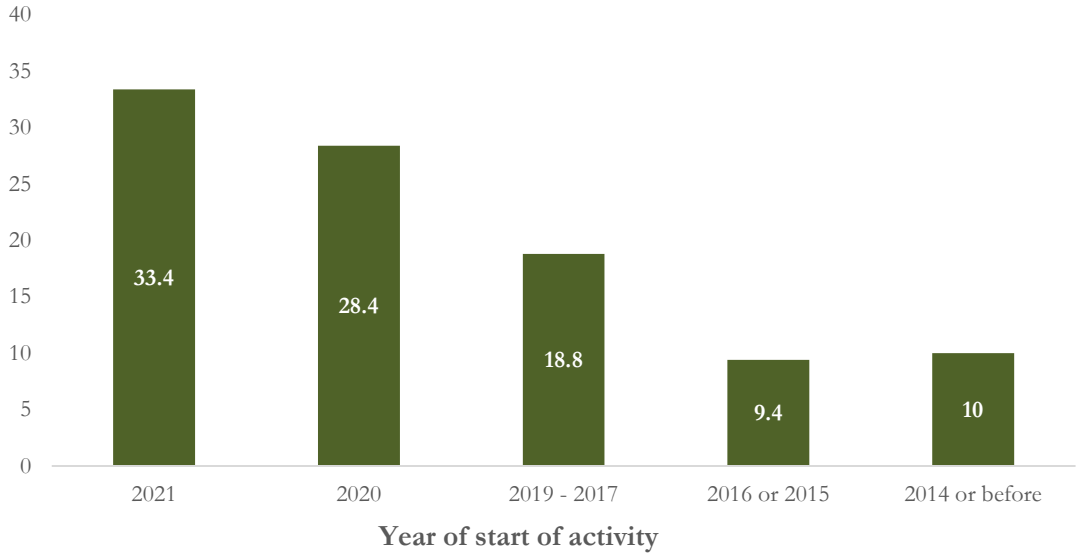


Source: survey.

I further analysed how many of the couriers started working on platforms at the beginning of the pandemic. From our sample, 309 started after the discovery of the new coronavirus. This represents 61.8%. Figure 6 below shows when couriers started delivering, showing who started before the arrival of "full service" in delivery apps in Brazil (before 2016) and those who started deliveries after the beginning of the new coronavirus pandemic. Thus

we can see that the pandemic became a central element in the development of labour precarisation and platformisation in Brazil (Antunes, 2020).

Figure 6: Percentage of couriers by when they started working in delivery



Source: survey.

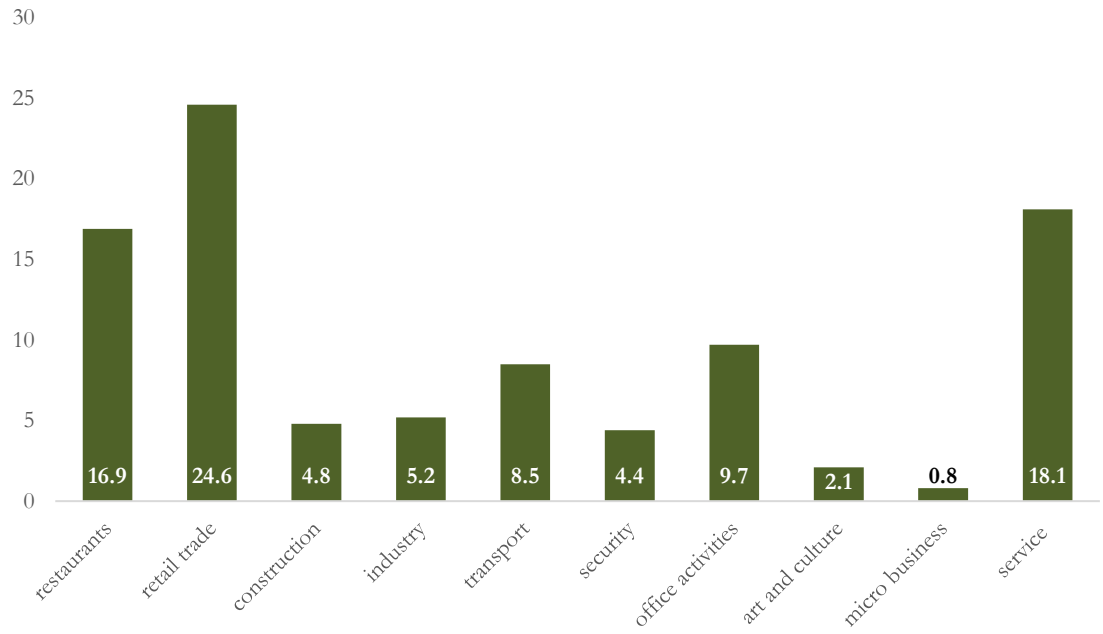
Not all of those who started delivering on the platforms during the pandemic were already in the delivery business before the pandemic. Of the 309 food couriers in question, 248 had some other profession before starting deliveries, so they belonged to Group 2. Let's look in more detail at this group. Among the most mentioned activities, those related to the food sector stand out (Figure 7). This category grouped all those who mentioned working in restaurants, coming to 16.9% of survey participants.

Another very significant group in Figure 7 was those whose previous occupation was generically referred to as the "retail trade". Here I included a wide range of reported professions which involved buying and selling goods directly to the final consumer. In total, 24.6% stated that they had worked in such occupations. Again, the pandemic had a great impact on this economic segment, which helps to explain this high proportion. Figure 7 further shows 4.8% were previously employed in civil construction, and 5.2% in occupations classified as manufacturing, which included, for example, welders, factory workers and crane operators.

Another group that deserves attention is designated "transport" in Figure 7. Here I put together those who worked with transport of goods as well as people, making up 8.5% of the couriers surveyed. Thus we have taxi drivers, truck drivers, motorcycle-taxi drivers, bus drivers, and ride-hailing-app drivers grouped together. I also found delivery drivers who had worked as private security guards (4.4%) and 9.7% had worked in administrative occupations. Besides this, 2.1% were grouped in activities related to "art, culture, sports and recreation" (which included "party assistant", costume designer, TV lighting technician, DJ, and musician), and two (0.8%) were micro-

entrepreneurs. Finally, the most heterogeneous group was "services". Here I placed electricians, gardeners, locksmiths, janitors, general services assistants and mechanics, among other activities that had in common the sale of a particular service to third parties, either autonomously or as employees of a company in the field. Despite being the second largest category, with 45 records (18.1%), the diversity of the group is one of its main characteristics, making the trajectories and activities quite distinct (Figure 7).

Figure 7: Former occupations of food couriers (percentage)



Source: survey.

In conclusion, the group that started working in delivery after the pandemic has certain common traits. Almost all of them previously belonged to the private sector. The ease of entering the activity and the greater demand for deliveries since March 2020 presented an opportunity for millions of Brazilians to continue to have some income, despite all the difficulties.

From this information, we can draw some conclusions about the general profile of the food couriers. The profile of the average delivery person is male, black, 29 years old, working on a motorcycle via an app, having started during the pandemic and having completed high school. But we can't base the totality of food couriers just on the average of each element of this data. Something fundamental that does not appear in the averages is the relationship between gender and precarisation, which, in the feminisation of the delivery activity, encapsulates a characteristic of this process. One of the interviewees, who waited away from the group, said that she had been working in delivery for a few months. This was only possible because her son's classes changed to one week at home and one week at school, instead of being entirely online. Thus she works on deliveries every other week. This shows, for example,

how platformised and precarious female work is related to reproductive labour (Vogel, 2013). In addition to gender, race also appears as a component that introduces specificities: police violence is part of the daily life of black delivery workers.

Working conditions

Now that we know who the food couriers are, both from quantitative and qualitative characteristics, we can analyse the ways in which they work. Here, we will fundamentally look at their conditions, work hours and income, and at work accidents. Thus we will gain greater depth of understanding of who current delivery workers are in Rio de Janeiro, and, putting this data side by side with the profile presented above, I also intend to investigate the role of apps in the daily lives of these workers.

Vehicle used in deliveries

The results of the survey showed that more than 70% of delivery drivers work on motorcycles. A possible reason for this difference is that the activity of "motoboys" is more consolidated in the Brazilian labour market, being officially recognised and regulated since 2009 (Regulamenta o exercício das atividades dos profissionais em transporte de passageiros, "mototaxista", em entrega de mercadorias e em serviço comunitário de rua, e "motoboy", com o uso de motocicleta (No 12.009 of 2009) Brasil). Table 5 indicates the total number and the ratio of cyclists and motorcyclists.

Table 5: Number and percentage of cyclists and motorcyclists

	Motorcyclists	Cyclists
Number	351	149
Percentage	70.2	29.8

Source: survey

There have been motoboys in the country's major urban centres for about 40 years, and their history includes political mobilisations and the creation of representative organisations (Barbaric, 2016). The same cannot be said for cyclists. They appeared in Brazil before the arrival of the apps, but they are fewer than those who use motorcycles, and there are no studies on their cohesion and political mobilisation before the appearance of the platforms in the country (Souza, forthcoming).

In this section I will describe how the food couriers carry out their activity. I have already mentioned that the history of delivery drivers is related to the development of using motorcycles to deliver documents and goods in urban centres. But deliveries by bicycle already existed and were not extinguished with the arrival of motorised

vehicles. Souza argues that the emergence of motoboys distanced motorcycle deliveries from bicycle deliveries, while apps create a reverse movement, bringing the two groups closer again (Souza, forthcoming). Thus the question of the type of vehicle is crucial, even more so when thinking about the research method: the cyclists and motorcyclists, when answering the questionnaire, were in common locations, often sharing the same delivery calls.

Delivery type

Another very important component is the way couriers work. In the research, I came across those who use the app to perform the activity and those who do not use this technology, as well as those who use the two concurrently. This observation calls for discussion about platforms and informal work. In Brazil, the formal sector is composed of those who are registered in the Employment Record Card, military personnel and statutory public employees, and employers and self-employed workers who contribute to social security (IBGE, 2012). The informal sector encompasses those who work in any other way than those listed above. Thus those who only use the application for deliveries do not have any type of contract, and are therefore part of the informal sector.

On most platforms, all you have to do is sign up and wait for approval to get started. But there are other ways to make deliveries besides the apps. Many food couriers are paid a fee per day, which is usually added to a percentage of each delivery they make, without any kind of formalised contract. This type of activity is known as "freelance". There are still food couriers who have a regular employment contract, which by law (Veda o emprego de práticas que estimulem o aumento de velocidade por motociclistas profissionais No. 12.436 of 2011) must receive fixed remuneration.

In the survey, most of the food couriers derived their income exclusively from the apps, while all those who did not use them at all had an employment contract (Table 6). Moreover, I realised that a large number of the food couriers made use of apps at some point. In this sense, I found that informality continues to be one of the main features of food couriers, at least 73.6%. However, I emphasise that this digitalised informality has its own specificities.

Table 6: Food couriers and the use or not of apps - numbers and percentages

	Uses apps		Employment contract
	Only apps	Apps and other	
Number	368	90	42
Percentage	91.6%		8.4%

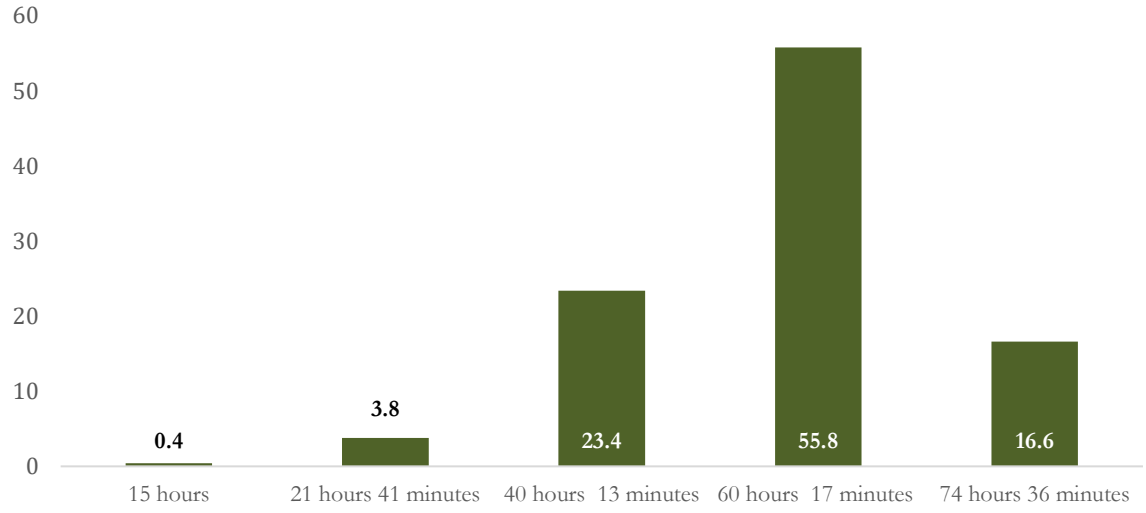
Source: survey

Hours of work

The time spent on an activity is one factor to measure the degree of labour exploitation, as well as to understand the level of precariousness in a certain context in a more concrete way, by comparing it with the broader context (Betti, 2016).

When we look at the number of hours worked daily, Figure 8 shows that more than half of the couriers surveyed worked nine to eleven hours a day, with a weekly average of 60 hours and 11 minutes. By law, the working day in Brazil is eight hours or 44 hours a week (Aprova a Consolidação das Leis do Trabalho No. 5.452 of 1943). When this is exceeded, a higher rate must be paid (Brazil, 1943). In other words, only 27.2% of the food couriers have a regular work day (Figure 8). It can be said, then, that most of the delivery drivers in the context of the platformisation of deliveries have a strenuous work day.

Figure 8: Average weekly working hours of food couriers



Source: survey.

Table 7 shows the average hours a day and days a week by vehicle used. The number of days is similar in both cases, and comparable to a regular job. This reinforces that the difference lies in the length of the work day.

Table 7: Average hours worked and days worked a week and the vehicle of the couriers

	Average hours worked a day	Average days worked a week
General	9 hours 21 minutes	5.96
Cyclists	8 hours 57 minutes	5.95
Motorcyclists	9 hours 33 minutes	5.97

Source: survey

Taking a closer look at work averages, it is interesting to think about the use or non-use of applications. The average daily working time of those who used platforms to deliver was nine hours and 27 minutes, while those who did not use this technology recorded eight hours and 44 minutes. Although this does not seem to be such a

significant daily difference, it is important to note the dominance of those who use apps in the category with the longest working time (Table 8). There is little difference in the percentage of app users and non-app users in the group that works an average of ten hours a day, but there is a greater concentration of couriers who do not use apps in the category with shorter hours in the group that does not use apps. With regard to the number of days worked a week, there is a much higher percentage of non-platform-users in the group that works six days a week, as indicated in Table 9.

Table 8: Percentage of couriers sorted by app use and working hours a day

	3 hours	4 hours	7 hours	10 hours	12 hours
Use apps	0.4	3.5	22.7	55.7	17.7
No apps	0	7.1	31	57.1	4.8

Source: survey.

Table 9: Percentage of couriers sorted by app use and days worked a week

	3	4	5	6	7
Use apps	1.3	2.2	19.2	52.4	24.9
No apps	4.8	2.4	11.9	71.4	14.3

Source: survey.

It seems, then, that apps are directly related to the level of labour exploitation, mainly in the workday. Looking at the numbers in another way, the 73% who work more than 44 hours a week symbolise the level of exploitation in deliveries in the digital age (Table 10). If we take a weighted average of the groups, putting 12 hours of work a day for those who checked "more than 12 hours" on the form, we arrive at the alarming figure that almost three-quarters of the food couriers worked for 63 hours and 42 minutes a week.

Table 10: Percentage of couriers by average weekly working hours

Less than 44 hours per week	Over 44 hours per week (with average of 63 hours and 42 minutes per week)
27	73

Source: survey.

This is interesting for thinking about the idea of gig economy, which had been associated with the platform economy (Slee, 2016). Let's look at some other data that can help us think about the concept. One of the questions in the survey was whether working with deliveries was the only source of income. Of the 500 couriers, 9.4% said they had other income. This included those who used deliveries to supplement their income. However, only six worked fewer than five times a week. That is, almost 90% of those who had another source of income worked at least five times a week. If we think about the group of food couriers who have other incomes besides the platform and work up to 22 hours a week, we reach a total of 8 food couriers. Table 11 shows this information.

Table 11: The gig economy?

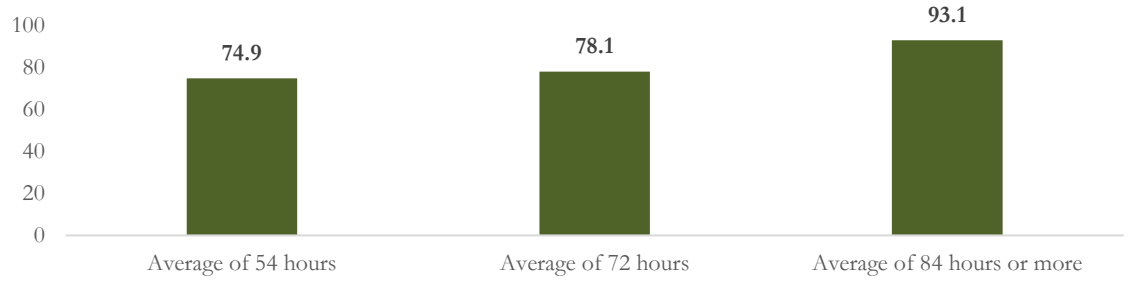
	Number of couriers	Percentage
Have another source of income	47	9.4
Worked up to 4 times a week	6	1.2
Working hours of up to 22 hours per week	8	1.6

Source: survey.

Thus, only these six or eight – or somewhere between 1.2% and 1.6% of the total surveyed – might fit within what is usually considered a supplementary-income job. The other 39 food couriers, by contrast, had delivery as their main income, and supplemented it with other services. This makes us think about the income received for this exhausting work day, which will be analysed next.

We can also think about the relationship between working hours and race. As shown in Figure 9, the longer the daily work day, the higher the percentage of black workers. When we recall what black delivery workers narrated in the interviews, we find an indication of the reasons for this variation.

Figure 9: Percentage of black couriers according to weekly working hours



Source: survey.

In summary, looking only at the data on the work day, it is possible to point to a relationship between high hours worked and the apps, either directly or indirectly. In other words, digital platforms seem to contribute to an increase in precariousness via the extension of the workday.

Income and earnings

Before analysing the data I collected about income, it is worth knowing that the minimum wage in Brazil at the time of the survey was R$1100.00, or R$5.56 an hour. This is extremely low. A calculation by Departamento Intersindical de Estatística e Estudos Socioeconômicos (DIEESE, 2021), an important organisation which has existed for almost 70 years, indicated this year that the minimum wage should be in the range of R$2828.83 (R$14.29 an hour). In the case of couriers, the earnings passed on by the platforms are before the deduction of maintenance costs, which can reach more than 50% of total income. The operating costs of motorcycle delivery couriers, for example, include food, fuel, vehicle insurance, oil, maintenance, high capacity mobile internet, appropriate clothing

and accessories and repairs in the event of accidents. If we count the wear and tear on the motorcycle, from calculations made with the average data given by the food couriers in the survey, the average net income of the food couriers was very close to the Brazilian minimum wage.

We can look in still more detail at these earnings. Motorcyclists who work through apps, for example, have, on average, a gross remuneration of R$3215.04, while those who do not use the platforms earn R$3812.83 – that is, a variation of 18.6%. If we also include cyclists who work with and without the use of apps, we get the figures in Table 12:

Table 12: Difference between earnings and value of working hour by vehicle and app use (in R$)

	Cyclists	Motorcyclists	Use App	No app
Total income	1507.04	3278.06	2678.77	3530.36
Earnings after costs	1398.05	1495.40	1467.34	1759.68
Value of the working hour	5.05	5.83	5.68	7.52

Source: survey.

With regard to average overall income there was no significant difference by race. I should emphasise that I am referring to total income, before deducting operating costs, in Table 13. However, although the earnings are similar, remember that black food couriers tended to have a longer working day.

Table 13: Earnings by race and vehicle (in R$)

	General	Cyclists	Motorcyclists
General	2750.30	1507.04	3278.06
Black	2755.11	1520.85	3335.36
White	2736.76	1454.52	3132.25

Source: survey.

Returning to Group 1 of the food couriers, considering the weekly work day, we note that the average daily working hours of this group was nine hours and 29 minutes. Combining this data with an average of 6.1 days a week, we reach an average weekly number of hours worked of 57 hours and 50 minutes and a monthly income in the range of R$3383.50. Table 14 compares Group 1's earnings with the overall average of the whole sample.

Table 14: Working conditions of couriers who have been working in food deliveries for more than six years

	Earnings (R$)	Average working hours
General	2750.30	55 hours 40 minutes
2016 food couriers	3383.50	57 hours 50 minutes

Source: survey.

In summary, when analysing earnings, we see that those who did not use apps have higher income than the group that used this technology. Once again, those who did not use apps seem to have a relatively lower degree of deterioration in their working conditions. However, the interviews with those belonging to Group 1 suggest that precarisation has been increasing, even among those who do not make use of the digital platforms.

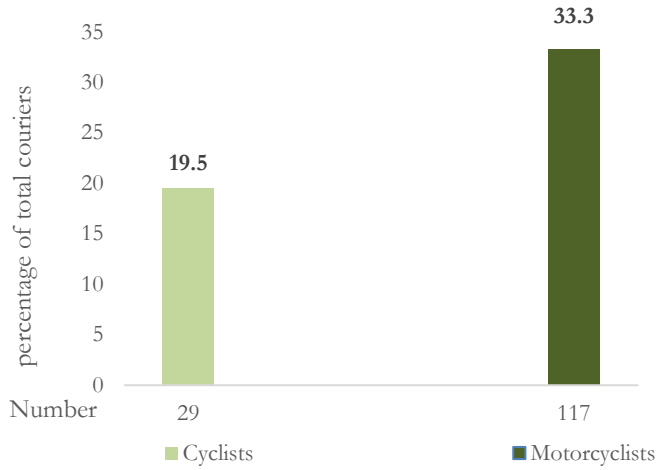
In short, the apps seem to pay less compared to those who did not use this technology to work, while also decreasing – to a lesser extent – their earnings. Considering what we saw in the previous section, the arrival of digital platforms in delivery has meant more working time and lower earnings.

Accidents in the workplace

Finally, let's address accidents. Here, I am not necessarily concerned with the relationship between those who used the apps and those who did not. However, we cannot fail to note that the association between the expansion of digital platforms and an increase in the number of accidents in Brazil has already been made in other studies (Rodrigues et al., 2021). In this section, I am interested in pointing out the risks involved in the activity of deliveries in general.

In the data collected, I observed that almost 30% of the delivery drivers had already suffered an accident that prevented them from working for some time. In the distinction between motorcycles and bicycles, there is a higher percentage for motorised vehicles, as shown in Figure 10. This, as can be assumed, is related to the nature of the vehicle and the activity itself.

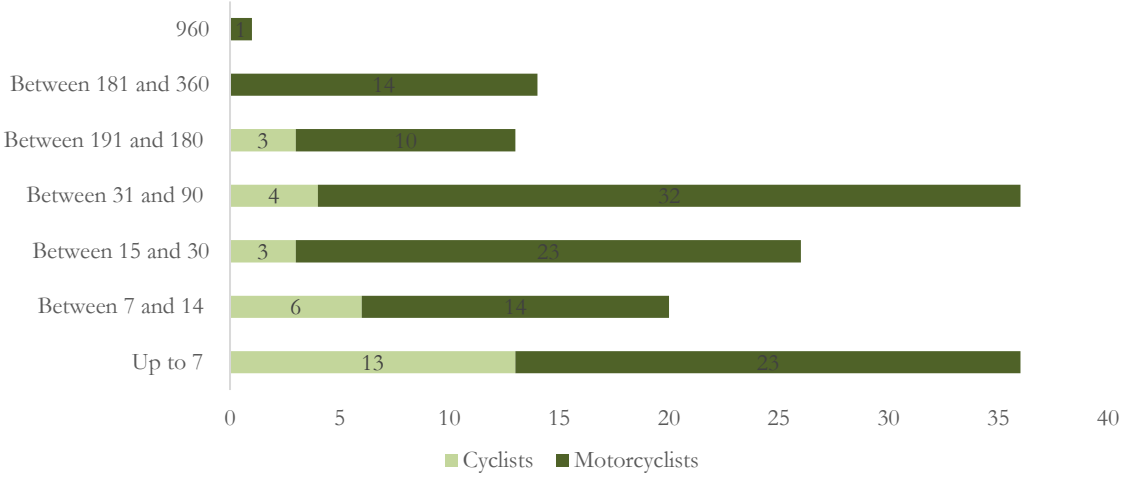
Figure 10: Number and percentage of couriers who suffered accidents by type of vehicle used



Source: survey.

Digging deeper, I tried to verify the period for which couriers were unable to work, and the answers varied. I found, in general, an average of 75 days without being able to make deliveries. Of the total 117 motorcycle couriers who suffered accidents, 22.2% had some kind of social protection, and got financial assistance while on leave. That means that 77.8% of those who had an accident stayed this long without receiving a monthly payment for the period without work. But this 75-day average does not present the details of how accidents amongst delivery couriers are distributed. The difference in time varies according to the vehicle, with higher values for motorcycles. Figure 11 indicates the number of days absent by vehicle used. It is worth noting that accidents with up to one week of absence are common, almost as many as those leading to one to three months absence.

Figure 1: Period without being able to work (in days)



Source: survey.

It is important to point out that accidents are part of the delivery drivers' history. However, when stimulated by goals managed by algorithms that ignore human mediations, under pressure to accomplish more in less time, and without social security, the possibility of having an accident has a greater weight. In this sense, the dynamics of the platforms certainly aggravate the insecurity in the activity, and even contribute to more cases such as the ones cited above.

Conclusion

In this paper, I have tried to address various facets that the dynamics of platformised deliveries introduce to delivery drivers, both in terms of their composition and their working conditions. Thus we can see that, in fact, this activity – so characteristic of the movement towards the digitalisation of work – has gigantic indications of precariousness. The absence of labour bonds and the subsequent denial of rights is certainly one of its main marks, but informality does not comprise the totality of precarious work (Mattos, 2019). Issues involving the working day,

as well as remuneration, also tend to carry weight in contextualising precariousness. Remuneration, which – being variable and related to productivity – is related to insecurity, which is another important concept for thinking about precarious work (Betti, 2016). It is, further, necessary to think about risks to the physical safety of the food couriers. Exposed to the chaotic traffic of big cities, under pressure to deliver the order on time, accidents are part of their daily lives (Barbaric, 2016). It is not accidental that almost a third of the delivery workers have already suffered some kind of fall from a moving vehicle, with absences that easily exceed 6 months. All these negative elements seem to be enhanced by the dynamics of the apps, as I observed in the survey data and the interviews.

One of the key elements of bikers and cyclists, as I have argued in this text, is their plurality. This, in turn, is usually related to the trajectory of these workers, so there is a big difference in the expectations and the apprehension of reality amongst the categories presented. While couriers in Group 1 tend to feel a sense of belonging and sees themselves as "delivery men by profession," Group 2 usually sees the activity as something temporary. This intermittent vision of this work is also shared by Group 3, with the difference that many of them have seen the possibility of entering the job market through the apps. This group of food couriers, although a minority, is of great importance, since it represents precarious insertion via digital platforms into the labour market.

In summary, the global phenomenon of labour digitalisation, encapsulated here in the delivery apps, when it arrived in Brazil – a peripheral country, marked by its colonial past and slavery, with a strong imprint of informality and precariousness in its working class – found fertile ground for its logic. Specifically, for the group of delivery workers, the meaning of digitalisation has been represented by the withdrawal of rights, increased work exploitation, and declining income. In short, the platformisation of deliveries has represented degradation within precariousness.

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