PLATFORM WORK: A DOUBLE EXPROPRIATION OF CAPITAL

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ABSTRACT

In this article, we want to discuss two key issues related to work on digital platforms: how it is possible to maintain despotic control of the work of delivery workers and app drivers through algorithms and at the same time get these workers to "lend" their work tools (car, motorcycle, cell phone, internet) to make profits for large companies. We call this phenomenon the double expropriation of capital. At first in our research, we started from a review of the bibliography of the phenomenon of uberization, based on the fourth industrial revolution or revolution 4.0, as well as the movements of this digital proletariat that try to break the despotic power of the app. In a second moment, we carried out field research with the application of 150 forms to analyze this double expropriation from the voice of workers, and also two interviews with union representatives and delivery workers, as well as interviews with some app workers. Our conclusion is that this double expropriation of app workers is part of an objective process gestated by the capitalist mode of production from its 2007/2009 crisis, and that, in order to get out of this crisis, it deepens the precariousness and exploitation of labor, with new unproductive restructurings, labor reforms and privatizations, expropriating jobs in the productive sectors and in the public service to create an army of "free" underemployed and/or unemployed For the greed of large corporations and digital platform companies, which have in the despotic control of algorithms and the extreme intensification of the working day, a fusion of the Taylorist regime with Toyotism, something we call *Tayotism*.

Keywords: Platform capitalism. Uberization. Digital proletariat. Algorithmic control. Double expropriation. Means of reproduction.

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INTRODUCTION

The present work wants to discuss two key questions related to work on digital platforms: how is it possible to maintain despotic control of the work of delivery workers and app drivers through algorithms? How can we get these workers to "lend" their work tools (car, motorcycle, cell phone, internet) to make the profits of large companies?

This phenomenon that we call the "double expropriation" of capital over digital platform workers has been fully realized since the last decade of the 21st century in all countries where uberized work, in reference to Uber, has been implemented. We call it "double expropriation" because: 1) categorically there is an expropriation of the life and time of these workers through digital technology and algorithms handled by companies and 2) there is an "expropriation" of the work instruments of these workers during most of the working day, even if it is not an expropriation in a legal way, but it does exist, something that Antunes (2019) called "digital slavery".

Through these two key questions, we will relate to categories that we have seen present in the theoretical debates that approach this phenomenon of "uberization" and digital technologies, such as: formal subsumption, real subsumption of labor to capital, virtual subsumption of labor, application as the main means of production, precariat and precarious work, piecework, and, mainly, proletariat, self-employed, entrepreneurial, categories that are at the center of the disputes and struggles of this new proletariat, as well as the nature of the large multinational transport and delivery companies: are they "parasitic companies" (Snircek, 2018) of the large corporations of contemporary capitalism or are they companies that aim at profits and seek to consolidate themselves in the market and in society in this new era of platform capitalism?

To carry out our research objective, we will review the literature produced on the problem of the "fourth industrial revolution", platform capitalism and the uberization of work, through the works of Schwab (2016), Snircek (2018), Standing (2020), Slee (2018), Antunes (2019, 2020, 2022, 2023), Grohmann (2021), as the most important; in a second moment, we will do a field research with Uber workers, 99 and with the app delivery workers of the various apps to try to understand why they submit to these conditions imposed by digital technology companies.

We start from the hypothesis that the double expropriation suffered by the digital proletariat, app drivers and delivery workers, is a consequence of a process of "chronic crisis" of the capitalist economy, aggravated in the years 2007-2009, which brought to the fore the new digital technologies and app companies, to which big capital transfers small

capital to "parasitic companies" with a view to a greater accumulation of capital at the end and the absence of a strong and centralized movement on the part of app workers.

This problem is so current that at the inauguration of the far-right President of the United States, Donald Trump, in January of this year, big tech capitalists such as Mark Zuckerberg (Meta), Jeff Bezos (Amazon), Sundar Pichai (Google), Shou Zi Chew (Tik Tok), Elon Musk (X and Tesla), Tim Cook (Apple) and Sam Altman (OpenAI) were present.

The phenomenal issues that we are going to deal with here have as a backdrop the deep and chronic crisis of the capitalist mode of production and the debate around a "fourth industrial revolution".

Today, with the advent of the worst capitalist crisis in history since 2008, and its consequences for modern society, can one speak of a new "industrial revolution"? Wouldn't it be more correct to speak of an industrial "counterrevolution" or a desperate attempt by the capitalist bourgeoisie to get out of its crisis of accumulation in which it has found itself for several decades and which has even given rise to new wars, such as the current War in Ukraine, which began with the Russian invasion of Ukrainian territory?

The object of our study is the labor relations born within the digital age, that is, a new proletariat, which, unlike the classical industrial proletariat of steam factories, which had only its labor power to sell to the capitalist, this new proletariat in order to maintain itself and exist needs, in addition to "selling" part of its labor power, enter with their own "means of production" (or rather, "means of reproduction") to ensure their survival and that of their family.

The question is: how was it possible for this new bourgeoisie of the digital age to expropriate "in reverse" the instruments and working time of this new proletariat? The double expropriation that we want to discuss throughout this work can only be explained by the deep crisis of the capitalist mode of production which, in order to try to get out of it, goes in search of new information technologies and new experiments in the world of work or services. The meaning we gave to the term expropriation is the same that Marx (2017) gave in Capital, when talking about the process of primitive accumulation of capital, where workers were expropriated of their labor instruments.

The "fourth industrial revolution" would be at the origin of this phenomenon, the entry of capitalism into the digital age, but the origin of this "fourth industrial revolution" would be in the deep and chronic crisis of the capitalist mode of production.

Who will enter us into this phenomenon and invent the very term of the "fourth industrial revolution" is Klaus Schwab, the founder and Executive Chairman of the World

Economic Forum, which brings together the main capitalists in Davos, Switzerland, every year in winter. As or more daring as Hobsbawm, he will tell us that

> "We are at the beginning of a revolution that will profoundly alter the way we live, work and relate to each other. In its scale, scope, and complexity, the fourth industrial revolution is something that I consider different from anything that has ever been experienced by humanity" (Schwab, 2016, p.11).

Paraphrasing Hobsbawm (1977, p.17) and the meaning of the industrial and French revolutions, which brought new words such as "industry", "bourgeoisie", "proletariat", "railway", "socialism", etc., we will say that for Schwab it is impossible to conceive of contemporary society without the words "artificial intelligence (AI)", "robotics", "internet of things", "autonomous vehicles", "3D printing", "nanotechnology", "biotechnology", "materials science", "energy storage" and "computing quantum", in addition to "Bitcoin" and "Blockchain", "smartphones", "neurotechnologies" and, we would add "digital proletariat" and "app brake".

Challenging some academics and practitioners who say that these innovations are just another aspect of the third industrial revolution, Schwab argues that we are in a "fourth industrial revolution" for three very powerful reasons: 1) the speed of change evolves at an exponential rather than linear pace; 2) The breadth and depth, as it is based on the digital revolution, leading to unprecedented paradigm shifts in the economy, business, society and individuals; 3) Systemic impact because it involves the transformation of entire systems between and within countries, industries, and across society (Schwab, 2016, p.13). We could update with the effect of artificial intelligence-powered drones that are having impacts on the current Ukraine War.

However, since "digitalization" means "automation", the "new" society that emerged from this digital birth will need fewer and fewer workers, as Schwab himself admits:

> "Today it is possible to create a unit of wealth with far fewer workers, compared to 10 or 15 years ago, because the marginal costs of digital companies tend to zero. Moreover, in the reality of the digital age, many new companies offer 'information goods' with virtually zero storage, transport, and replication costs. Some disruptive technology companies seem to require little capital to thrive" (Schwab, 2016, p.18).

And it makes a comparison between a traditional production plant like Detroit, which in 1990 had a combined market capitalization of US$ 36 billion, a turnover of US$ 250 billion and 1.2 million employees, with Silicon Valley in 2014, where the three largest companies had a higher market capitalization of US$ 1.09 trillion, with the same revenues generated US$ 247 billion, but with ten times fewer employees, about 137 thousand (Schwab, 2016, p.18). This "fourth industrial revolution" or revolution 4.0 also "establishes the refinement of the extraction of surplus value, in a non-circumstantial way, since capital

does nothing without the purpose of submitting human potentialities to its expansion project" (Chaves, Santiago, 2025).

Of course, Schwab does not consider "workers" those who are at the forefront of some of these digital companies, whether Uber app drivers or Ifood and other delivery companies.

And this is precisely what interests us about this whole process called by Schwab the "fourth industrial revolution", that is, the emergence of a contingent of workers who add up to about five million people worldwide, the children of "uberization", because they were born and developed in Silicon Valley, California, the United States and spread to more than 70 countries. this authentic "digital proletariat" in the words of Antunes (2019, p.15).

Just as in the nineteenth century the factory proletariat was the heir of the first industrial revolution, with the introduction of the steam engine, this "digital proletariat" is an authentic child of the "fourth industrial revolution", leveraged by information technologies and digital platforms.

The phenomenon of "uberization" is a direct consequence of the crisis of accumulation of contemporary capitalism. In an attempt to reinvent their profits and get out of the most serious economic crisis in history, capitalists have turned to new information technologies. Uberization brought with it a "new wave of precarious work", as Slee (2017) tells us, the famous thesis of the sharing economy brought billionaire profits for some and misery and precariousness for many. Criticizing the false language of "altruism" and "generosity" behind the Sharing Economy – as companies in the era of uberization are called – Slee tells us that

> This economy is predominantly made up of commercial organizations, not non-profit organizations. Of Peers' seventy partners, more than sixty are profit-driven companies; and California corporations took more than 85% of the revenue obtained by sharing economy companies. Despite bringing together initiatives around the planet, the path of money shows that the Sharing Economy is fundamentally a Silicon Valley phenomenon... (Slee, 2017, p.55).

It was no coincidence that Uber emerged in California, United States, in 2009, at the height of the greatest capitalist economic crisis in history.

Some theorists of platform capitalism, such as Snircek, make a causal relationship between the crisis of capitalism and the emergence of digital platforms. Srnicek (2018) sees in the "data" the raw material for the expansion of the new capitalist wave, raw material that would drive a great change in capitalism. According to this author,

> With a prolonged decline in the profitability of the manufacturing industry, capitalism has turned to data as a way to maintain economic growth and vitality in the face of the inert sector of production. In the twenty-first century, on the basis of changes in

digital technologies, data has become increasingly central to companies and their relationship with workers, customers, and other capitalists (Srnicek, 2018, p.13).

But this "data" is not neutral. They follow the command of those who design them, and in the case of large app companies, these commands designed through algorithms serve to bring to light the most perverse and despotic control over the group of workers who use these apps to make a living and survive in the capitalist mode of production in crisis. That is why authors such as Denaher (2016, p.3) tell us that we would be in an era of "algocracy", of complete control of algorithms over our lives or that we would be in an "Era of Surveillance Capitalism", as Zuboff suggests, for whom

> "Digital connection is now a means for third-party commercial purposes. At its core, surveillance capitalism is parasitic and self-referential. It revives Karl Marx's old image of capitalism as a vampire that feeds on work, but now with a twist. Instead of work, surveillance capitalism feeds on every aspect of all human experience" (Zuboff, 2019, p.24).

For us, these theorists outlined key categories that we will discuss throughout this work: platform capitalism (Snircek), uberization (Slee), digital proletariat (Antunes), surveillance capitalism (Zuboff) and expropriation (Marx).

The objective of this article is to present the double expropriation that capital, configured in this new digital bourgeoisie and its technologies, exerts on these new proletarians born in the digital age. Double expropriation in the sense of the surplus labor time that is extorted from delivery workers and drivers of digital platforms by algorithmic maneuvers, as well as the "expropriation" of their work instruments in a fraudulent way, without spending a liter of fuel or even 1 gig of internet in this process of labor exploitation. In this sense, these theorists will help us on our journey through research.

METHODOLOGY

Our research had a very exploratory nature because it is a phenomenon that covers a little more than a decade, in addition to the fact that the articles and theses in Portuguese on the problems we want to address are still very incipient.

In the first moment of our research, we made a theoretical journey in the world and national literature about the genesis and development of digital platform capitalism, uberization and the digital proletariat, mainly the works of Slee (2017), Snircek (2018) and the digital work laboratories coordinated by Antunes (2018, 2019, 2020, 2022, 2023); as well as Marx's (2024) analyses of the process of expropriation of workers at the birth of capitalism and of the working day. With this we were able to better outline and delimit the categories that we deepened in our discussion: formal subsumption, real subsumption of

labor to capital, virtual subsumption of labor, application as the main means of production, generation of surplus value on digital platforms, precariat and precarious work, piecework, horizontalist unionism via social networks and, mainly, proletariat, self-employed worker, entrepreneur, categories that are at the center of the disputes and struggles of this new proletariat, as well as the nature of the large multinational transport and delivery companies: are they "parasitic companies" (Snircek, 2018) of the large corporations of contemporary capitalism or are they companies that aim at profits and seek to consolidate themselves in the market and in society in this new era of platform capitalism?

We also searched the collections and websites of institutions that do research on the world of work (mainly the ILO, Ministries of Labor in the countries) to check and cross-reference data on the capital-labor relationship between app workers and companies.

The second step was a field research, consisting of questionnaires and interviews directed to some leaders about this process of "double expropriation". We used the quali-quanti method and the "snowball" technique, where a form was applied via Google forms among the main groups of apps that organize and mobilize app workers, which allowed us to collect 150 forms, which were discussed in item 4 of this work.

We can say that the use of the qualitative and quantitative method or quali-quanti is what drives our research, according to the interpretation of Pereira, A.S et alii (2018, pp. 66-67), when he tells us that "Qualitative methods are those in which it is important for the researcher to interpret with his opinions about the phenomenon under study".

Something very similar to what Gil (2017, p. 113) calls "convergent design", where it is characterized "by the collection and analysis of both quantitative and qualitative data during the same stage of the research process, followed by the fusion of the two sets of data into a general interpretation". This was possible thanks to the "snowball" method.

The "snowball" sampling technique according to Vinoto (2014) is constructed as follows: "for the kick-off, documents and/or key informants, named as *seeds*, are used in order to locate some people with the necessary profile for the research, within the general population". Then, "the people indicated by the seeds are asked to indicate new contacts with the desired characteristics, from their own personal network, and so on, and in this way, the sampling staff can grow with each interview, if it is of interest to the researcher".

In the case of the app delivery workers' movement, which is very horizontal in nature, where there are no traditional union structures, and the leaderships and contacts are various and dispersed, the "snowball" technique is essential to collect the largest number of informants for the research.

Still within what we are calling the Quali-Quanti Method, we selected some national and local leaders of the app workers' movement to conduct interviews with a script of targeted questions, which will basically deal with the main issues faced by the movement of delivery workers and Uber drivers.

RESULTS

Our field research involved interviews with app drivers' union leaders and the application of one hundred and fifty forms. We chose Belém and São Paulo, the capital, as the main cities in the application of the forms; Belém because we are located in the northern region and São Paulo because of its strategic weight and because it has the highest concentration of drivers and delivery workers in the country. The "snowball" method was fundamental, as we chose two union leaders who made it possible for us to return the one hundred and fifty forms, Gringo, president of AMABR in São Paulo, and Euclides, President of Sindtap.

QUESTIONS 1 TO 6 DEALT WITH LOCATION, AGE, SEX, MARITAL STATUS, EDUCATION, COLOR OR RACE

We obtained 68% (102) of responses from São Paulo and 26% (39) from the city of Belém, with the rest from Ananindeua, the interior of São Paulo and other cities. Most of these workers, about 62% (93) are in the age group of 32 to 45 years, and we also have a significant number in the group of 46 to 55 years, about 16.7% (25), and a younger group of 18 to 31 years, accounting for 19.4% (29) and a small percentage (2%) in the group over 55 years old.

As for gender, the absolute majority of the category of app drivers and delivery workers, 97.3% (145 responses) are male and only 2% (3 responses) female.

Most of these workers, about 58.7% (88 responses) are married, either legally or living in a stable union; Another 32% (48 responses) are single, with a percentage of 6.7% (10 responses) of divorced. It also reflects the age groups of these workers, as we have seen above.

In terms of education, the majority, 52% (78 responses) have completed high school, while 15.3% (23 responses) have incomplete high school; It is important to highlight the percentage of 22% (33 responses) of workers with higher education, and of these, 9.3% completed their courses. We also had about 10.7% (16 responses) who attended elementary school only, of which about 6.7% completed it.

When asked about the question of race or color, the majority, 55.3% (83 answers) declared themselves to be brown, and another 6.7% (10 answers) declared themselves to be black, which together gives 62%, and only confirms the census surveys in Brazil by the IBGE and the surveys on app workers in Brazil, where most of these workers are black. We also obtained a percentage of 36% (54 responses) who declared themselves white, and two responses for yellow and one response for indigenous.

Questions 7 to 29 dealt with discussing the company in which he works, working time, income or earnings from work, fuel and internet costs, kilometers traveled by cars and motorcycles, whether the vehicle or motorcycle or bike are owned or rented.

ENTERPRISE, WORKING TIME, EARNINGS AND INCOME, LABOUR COSTS

When we asked drivers which apps (companies) the majority worked for, 54.7% (58 responses) answered Uber, 46.2% (49 responses) answered 99POP and another 50.9% (54 responses) marked "other". The percentage will not equal 100%, as drivers usually work for more than one app.

In the case of delivery workers, the absolute majority, 63% (75 responses) are linked to Ifood, followed by Loggi, with 37% (44 responses), Uber Eats 30.3% (36 responses), then 99 with 27.7% (33 responses) and Rappi 13.4% (16 responses). We also had 40.3% (48 responses) with other apps.

Regarding the length of work in the apps, the vast majority of drivers, almost 70% (80 responses) are between 4 and 5 years and more than 5 years, while the remainder, 27.8% (32 responses) are in the range of 1 to 3 years of work time, and a small minority, 2.6% (3 responses) has been working in apps for less than 1 year

In the case of delivery workers, the vast majority, 83.6% (97 responses) are also in the range of 3 to 5 years and more than 5 years of experience in the apps, while 8.6% (10 responses) are between 2 and 3 years and 7.8% (9 responses) are in the range of 1 to 2 years.

When asked about how many days a week they work, there was no majority above 50%, as in the previous items, but added together, most work between 6 and 7 days a week. The great concentration is on 6 days a week, with 46% (69 responses), followed by 7 days a week with 26% (37 responses); then comes 5 days a week with 23.3% (35 responses), and finally a small minority, 4.7% (8 responses) that oscillates between 1 and 4 days. The figure below demonstrates this overexploitation in the intensification of work:

Figure 1: Days worked in the week
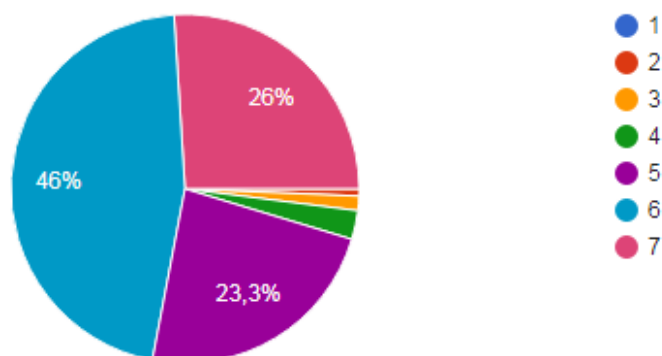
Source: Field research Dec/24 and Jan/25

In the case of the daily workload, we saw that most drivers and delivery workers, 58% (87 responses) work between 9 and 12 hours, but we cannot underestimate the fact that 15.3% (23 responses) extend their workday between 13 and 15 hours a day and even more than 15 hours, followed by 10% (15 answers) who concentrate their workload between 4 and 6 hours a day. It can be seen that in addition to the intensification of work on weekdays, there is an overload of work in the daily hours of the day, as shown in the figure below:
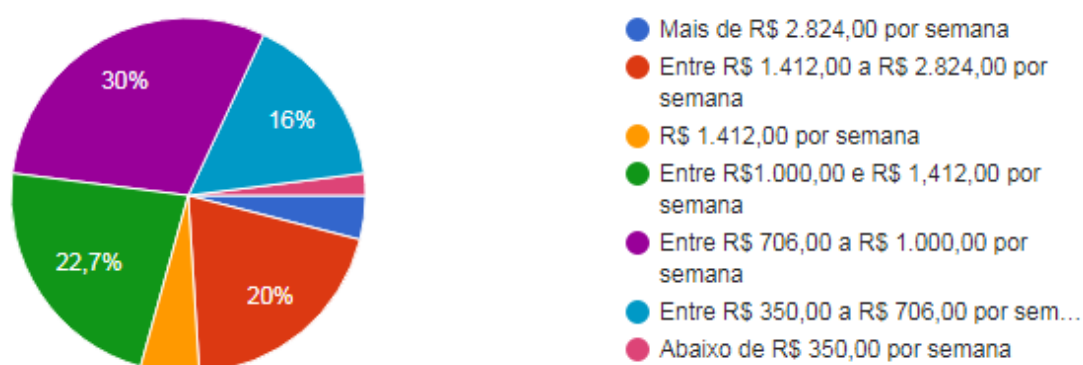
Figure 2: Daily hours worked by drivers and delivery workers
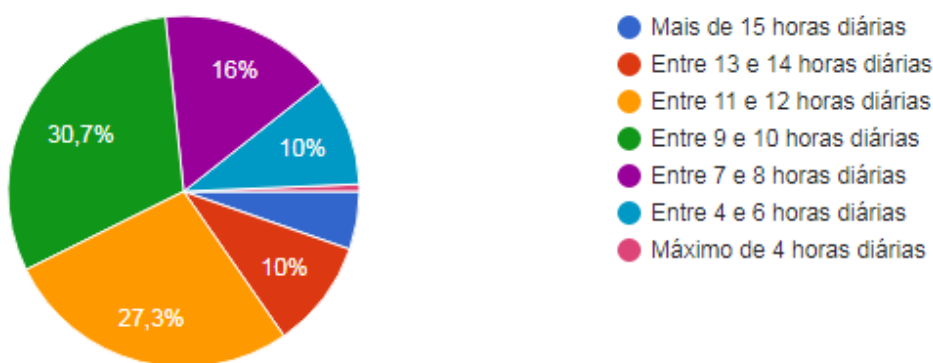
Source: Field research Dec/24 and Jan/25

Regarding the weekly income of app drivers and delivery workers, we saw that the majority, 52.7% (79 responses) are in the ranges between R$ 706.00 and R$ 1,412.00 (value of the minimum wage in December 2024); soon after comes an intermediate fringe, 20% (30 responses) earning between R$ 1,412.00 and R$ 2,824.00, followed by 16% (24 responses) who earn between R$ 350.00 and R$ 706.00 per week; Completing the table, we have 5.3% (8 answers) who earn R$ 1,412.00 (one minimum wage), and at both extremes a minority of 4% (6 answers) who earn more than R$ 2,824.00 (two minimum wages) and 2% (3 answers) who earn less than R$ 350.00 per week, according to the figure below:

Figure 3: Weekly income of app drivers and delivery workers

Source: Field research Dec/24 and Jan/25

When asked if their vehicle was their own, both app drivers and delivery people answered yes. In the case of drivers, it was 57.1% (60 responses) and among delivery workers it was a much higher percentage: 83.3% (90 responses). However, among those who finance their vehicle, drivers have a higher percentage: 22.9% (24 responses) against 8.3% (9 responses) of delivery workers who finance their motorcycle. We also have a sector that rents your car or motorcycle, in the case of drivers 12.4 (13 responses) and delivery workers 7.4% (8 responses).

Regarding the weekly fuel costs of motorcycle delivery workers, a third of the responses, 32.4% (35 responses) spend between R$ 100.00 and R$ 150.00; then, almost another third 29.6% (32 responses) spend between R$ 50.00 and R$ 100.00; then we have a range of 17.6% (19 responses) that spends between R$ 150.00 and R$ 200.00; between R$ 200.00 and R$ 250.00 we have 10.2% (11 responses), and more than R$ 250.00 about 9.3% (10 responses). We had an answer that spends less than R$ 50.00 per week. We can see this data in the figure below:

Figure 4: Weekly fuel expenditure (motorcycle couriers)
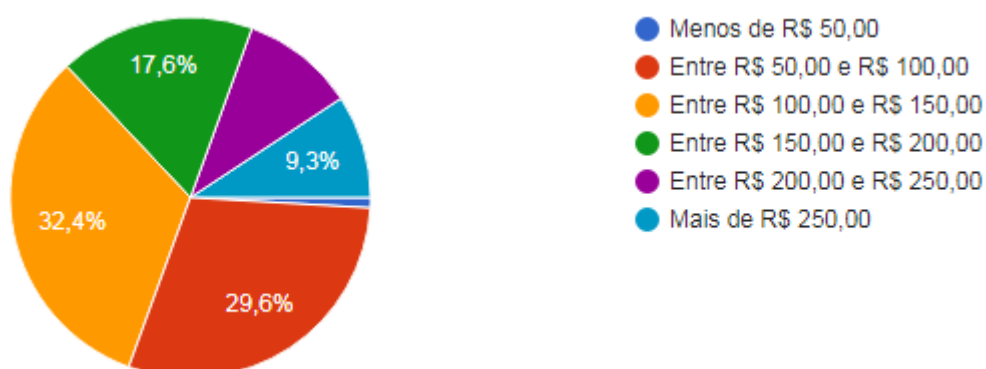
Source: Field research Dec/24 and Jan/25

In the case of drivers, the weekly expenses with fuel were, for the most part, 75.7% (53 responses) in the range of more than R$ 200.00; followed by 10% (7 responses) who

spend between R$ 100.00 and R$ 150.00; then, with 8.6% (6 responses), those who spend between R$ 150.00 and R$ 200.00; we obtained 4 responses from those who spend between R$ 50.00 and R$ 100.00 and less than R$ 50.00, as shown in the figure below:

Figure 5: Weekly fuel expenditure (drivers)
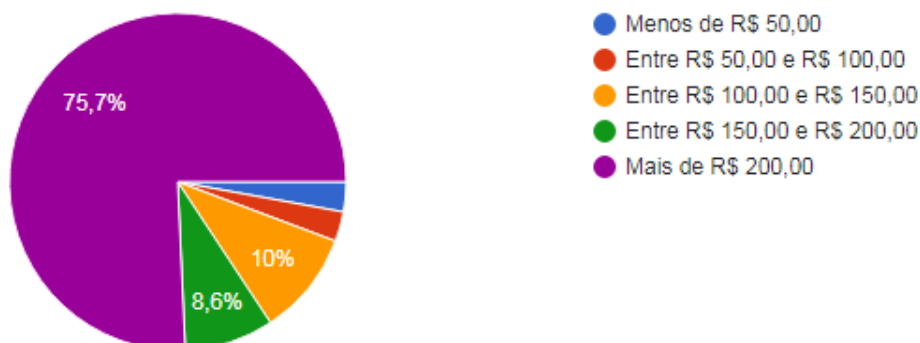
Source: Field research Dec/24 and Jan/25

In the question of mileage per week, we saw that the majority of delivery workers with motorcycles 67.4% (74 responses) travel more than 450 km or in the range of 350 to 450 km; Then we have a group that travels between 200 and 350 km, totaling 16.8% (19 responses), and a range of 14.5% (16 responses) that travels between 100 and 150 km per week and we got an answer for less than 100km. This mileage can be seen in the figure below:

Figure 6: Mileage per week (motorcycle couriers)
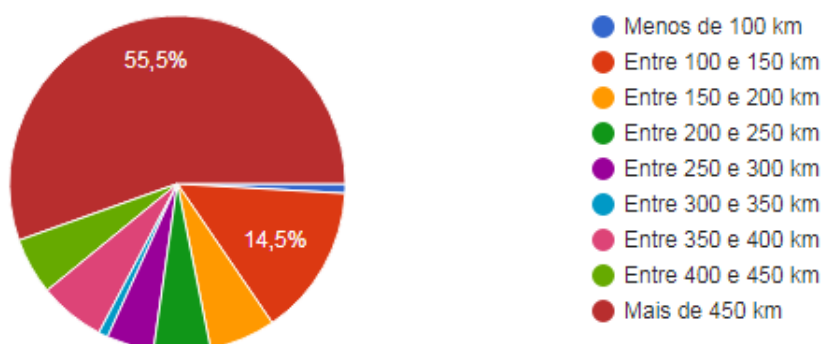
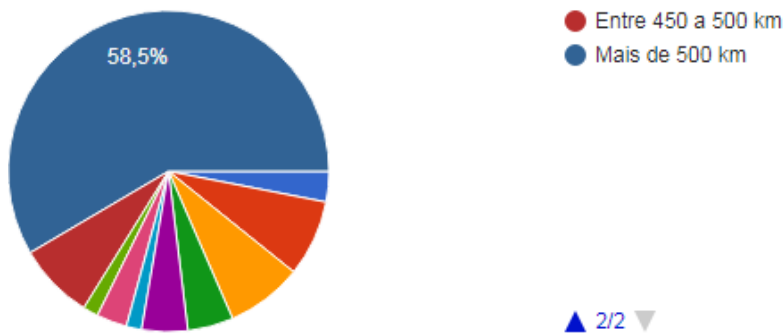Source: Field research Dec/24 and Jan/25

In this regard, app drivers mostly make up, 67.7% (44 responses), more than 500 km or between 400 and 500 km per week; in the range between 300 and 400 km we had 9.2% (6 responses); between 150 and 300 km we obtained 16.9% (11 responses); between 100 and 150 km 7.7% (5 responses) and two responses with less than 100 km per week, as we can see in the figures below:

Figure 7: Mileage per week (drivers)

58,5%

- Menos de 100 km
- Entre 100 e 150 km
- Entre 150 e 200 km
- Entre 200 e 250 km
- Entre 250 a 300 km
- Entre 300 a 350 km
- Entre 350 a 400 km
- Entre 400 a 450 km

▲ 1/2 ▼
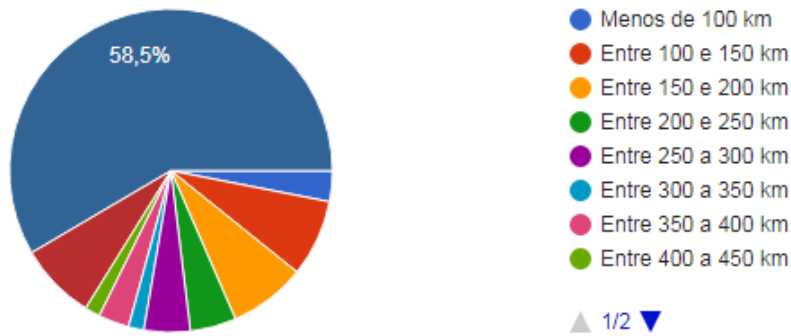
Source: Field research Dec/24 and Jan/25

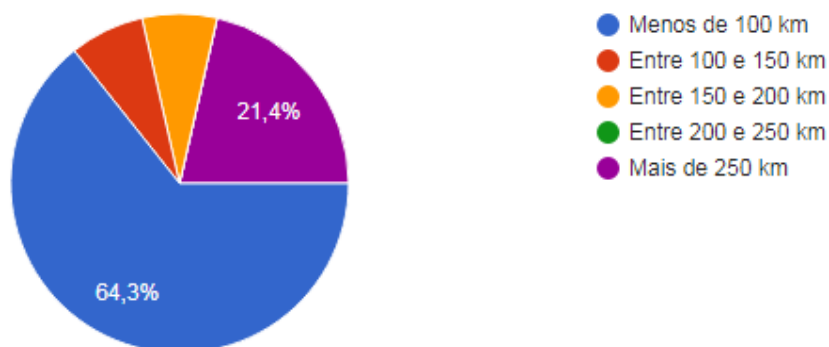

Figure 8: Mileage per week (drivers)

58,5%

- Entre 450 a 500 km
- Mais de 500 km

▲ 2/2 ▼

Source: Field research Dec/24 and Jan/25

In the case of delivery workers who use the bike, we obtained 14 answers about the weekly mileage. The vast majority 64.% (9 responses) drive less than 100 km; Then, 14.2% (2 responses) drive between 100 and 200 km, and another 21.4% (3 responses) drive more than 250 km per week, as shown in the figure below:

Figure 9: Mileage per week (bike)

21,4%

64,3%

- Menos de 100 km
- Entre 100 e 150 km
- Entre 150 e 200 km
- Entre 200 e 250 km
- Mais de 250 km

Source: Field research Dec/24 and Jan/25

Regarding monthly internet costs, we saw that both app drivers and delivery workers, in their vast majority, do not spend more than R$ 150.00 on the internet to stay logged in

during the workday. Only a minority, 13.4% (11 responses) in the case of drivers and 10.9% (12 responses), spends more than R$ 150.00 per month.

When asked how they would classify the general costs of their work, the vast majority of drivers and app delivery workers 84.6% (126 responses) rated the costs as very high or high, 10.7% (16 responses) rated them as moderate, and 4.7% (7 responses) rated them as low, all of which are indicated in the figure below.

Figure 10: Overall Labor Costs
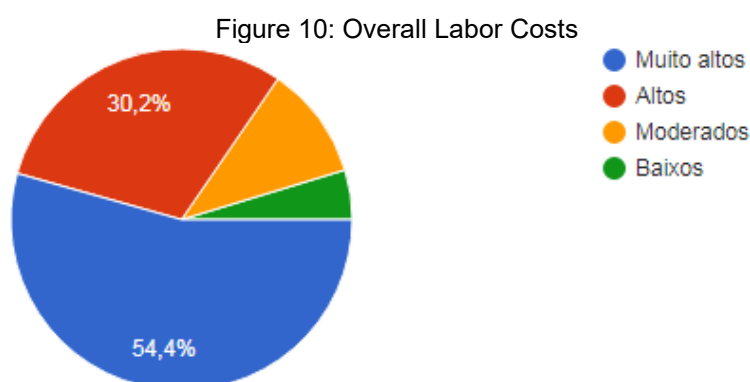
Source: Field research Dec/24 and Jan/25

Regarding the main costs that impact performance, we saw that fuel, vehicle maintenance and fees charged by apps are the ones that count the most. For both Uber or 99Pop drivers and delivery workers, fuel is the main factor that reduces income, with 45.3% (68 responses), followed by fees charged by apps 28% (42 responses) and vehicle maintenance 22.7% (34 responses). A minority 3.3% (5 responses) answered other costs. The figure below helps to visualize the answers.

Figure 11: Impact of the main costs on income
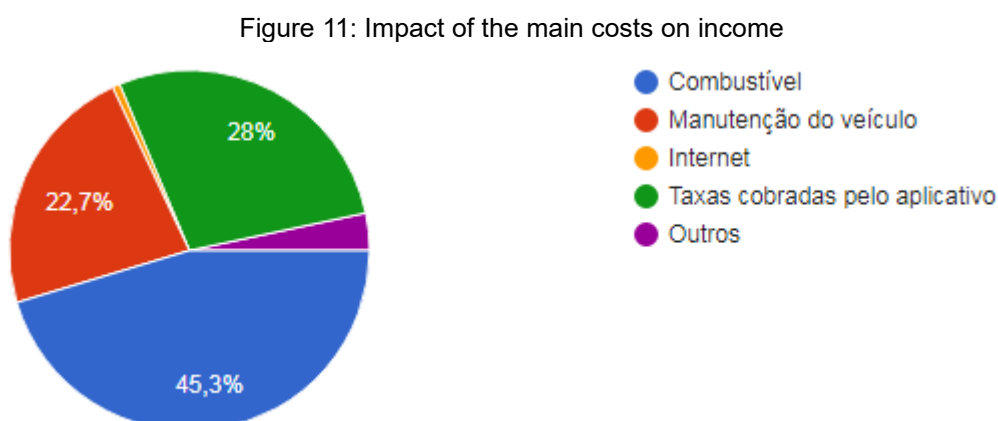
Source: Field research Dec/24 and Jan/25

Here we come to one of the key questions that can help our main working hypotheses about the double expropriation of the app worker, that is, the issue of weekly net income after deducting all labor costs. We got two larger ranges of responses. The first,

39.9% (59 responses) is between R$ 600.00 and R$ 1,000.00 and the second is between R$ 300.00 and 600.00 per week had a percentage of 32.4% (48 responses), that is, 70.3% make up an income between R$ 300.00 and R$ 1,000.00 every week after deducting costs. Then we had workers who have a net income between R$ 1,000.00 and R$ 1,500.00, something around 12.2% (18 responses), and located in the highest range of more than R$ 1,500.00 we had 8.8% (13 responses), as well as at the lowest extreme, less than R$ 300.00 per week we had 6.8% (10 responses). This we can see in the figure below.

Figure 12: Weekly Net Income after deduction of costs
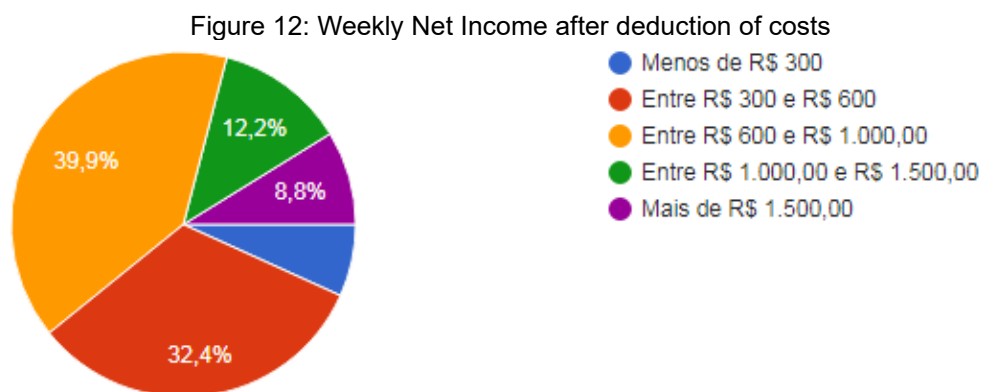
Source: Field research Dec/24 and Jan/25

These data were also corroborated by the president of Sindtapp (Union of App Workers in Pará), Euclides Magno, in an oral interview held in January of this year. According to Euclides, "to earn a value of R$ 120.00 cleaned daily, it is necessary to run 12 hours a day or more" (Euclides Magno, Interview at Sindtapp Headquarters, Belém/PA, on 01/06/25).

Regarding the time dedicated to work and the financial return, with the use of the Likert Scale, the majority 53.7% (80 responses) consider the financial return unsatisfactory or very unsatisfactory; About 14.8% (22 responses) consider it satisfactory and 31.5% (47 responses) consider it neutral. There was no response evaluating the financial return in relation to the working time as very satisfactory.

When asked if the work compensates the costs and efforts invested, with the help of a Likert Scale, the absolute majority, 69.8 (104 responses) answered rarely or never, while 26.2% (39 responses) answered that it often pays off, and a minority 4% (6 responses) answered that it always pays off, as shown in the figure below.

Regarding the evaluation of the cost/benefit ratio of work, on a scale of 1 to 5, the majority 57% (85 responses) evaluate it as regular, a minority 4.7% (7 responses) evaluate it as good and 38.3% (57 responses) evaluate the cost/benefit ratio as bad or very bad, that is, almost 40% of the 149 responses.

In the question we asked about whether platforms use methods of labor exploitation, the vast majority, about 83.2% (124 responses) said yes, while 14.1% (21 responses) answered that in part and a small minority 2.7% (4 responses) answered no, according to the figure below.

Figure 13: Whether platforms use labour exploitation methods
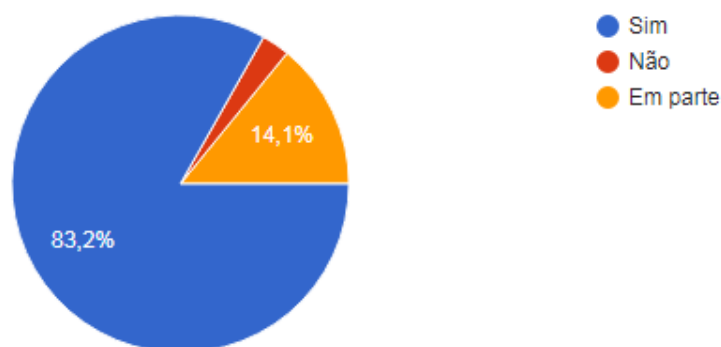
Source: Field research Dec/24 and Jan/25

OPINION ON THE EVALUATION SYSTEM OF APPLICATION PLATFORMS (QUESTIONS 31 TO 35)

About the scoring system from 1 to 5 stars executed by the platforms, only a small minority 5.4% (8 responses) consider it good; another 39.2% (58 responses) consider it very bad or very bad and another 30.4% (45 responses) consider the system unsatisfactory; We also had a fraction of 25% (37 responses) that consider the system to be regular, but in general the evaluation system is disapproved by the vast majority.

Still on the issue of evaluation, the absolute majority 74.3% (110 responses) of respondents consider the evaluation system of the platforms unfair, another 20.3% (30 responses) consider that the system is partly fair and a minority only considers it fair, 5.4% (8 responses), according to the figure below.

As a result of the evaluations received by users, more than two-thirds, about 70.1% (103 responses) have already received punishments from the platforms, whether blocks or other restrictions; The other third, about 29.9% (44 responses) said they did not receive any punishment because of customer reviews.

Asked if the evaluation system influences the relationship with customers, the majority 45.9% (68 responses) answered that it influences a lot, 36.5% (54 responses) said that it influences little and 17.6% (26 responses) said that it does not.

On the question of whether there is enough transparency about how reviews impact their performance on the platforms, the vast majority 67.3% (99 responses) answered no; Another 17.7% (26 responses) answered yes, and 15% (22 responses) said yes.

ABOUT THE CONTROL OF THE APPLICATION AND ITS ALGORITHM IN THE NUMBER OF RIDES/DELIVERIES (QUESTIONS FROM 36 TO 40)

Asked if the app (and its algorithm) directly influences the number of rides, in the case of drivers, and deliveries, in the case of delivery workers, the absolute majority, 85.2% (127 responses) answered yes, only 6% (9 responses) said no and 8.7% (13 responses) are not sure.

On whether the app clearly informs the criteria used to distribute rides or deliveries, only a minority 6.8% (10 responses) answered yes, that the app is transparent. The vast majority 93.2% (137 responses) answered that the app is unclear in the criteria or is completely opaque, which we can see in the figure below.

Figure 14: Application clarity in ride/delivery distribution
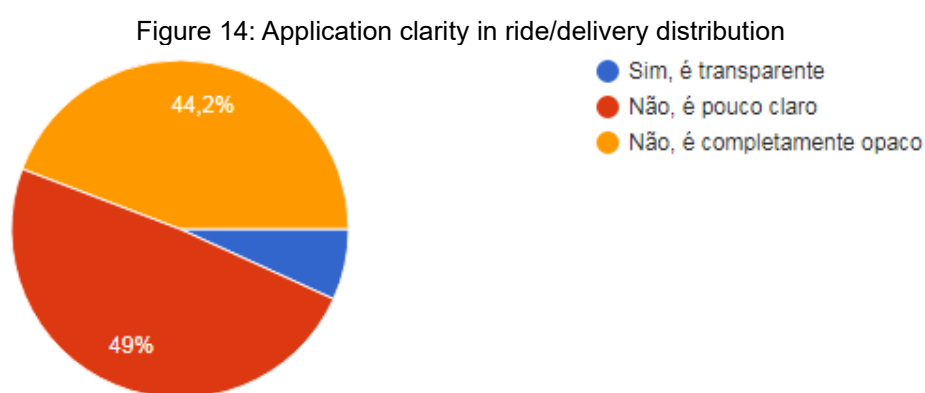
Source: Field research Dec/24 and Jan/25

When asked if the refusal of calls interferes with the reduction of the number of rides or deliveries, the vast majority 68.5% (100 responses) answered yes, that it decreases considerably; another 21.2% (31 responses) said yes, it decreases a little; only 5.5% (8 responses) said no, that they did not notice changes; About 4.8% (7 responses) did not know how to evaluate.

Regarding whether the app allows access to complete information about the rides delivered (destination, total value, distance), the majority, 57.8% (85 responses) answered frequently or always, while another 42.1% (62 responses) answered rarely or never.

When we asked if the app favors a certain group of workers (by region, time, etc.) an absolute majority, 77.7% (115 responses) answered yes, while 10.1% (15 responses) said no and 12.2% (18 responses) did not know how to evaluate.

Regarding whether the application offers any support or solution to technical or safety problems during work, the vast majority, 75.7% (112 responses) answered rarely or never, while 17.6% (26 responses) answered frequently and 6.8% (10 responses) said always.

Regarding Bill 12/2024 that is being processed in the National Congress and which establishes minimum values for the ride of four-wheeled drivers, social security contribution and the right to collective bargaining, the majority, 45.3% (67 responses) answered yes, that they agree with it; 35.1% (52 responses) answered that they do not agree, and 19.6% (29 responses) did not know how to give an opinion. The answers can be seen in the figure below.

Figure 15: Agreement with Bill 12/2024
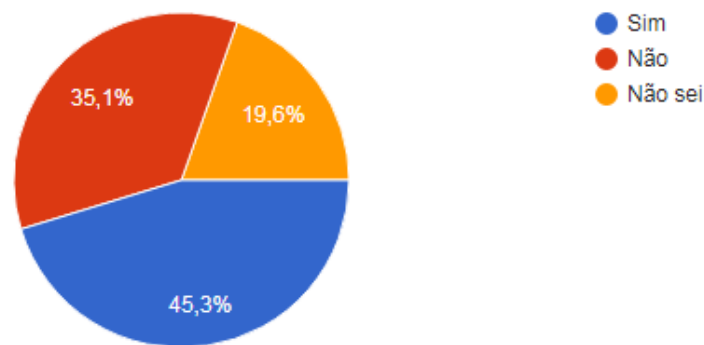
Source: Field research Dec/24 and Jan/25

When asked about their condition in relation to the activity they perform, and this is one of the main controversies among the workers themselves, the majority, 48.3% (72 respondents) answered that they consider themselves to be a worker linked to a digital company; an important part, 38.3% (57 responses) consider themselves self-employed; Only a minority, 4.7% (7 responses) consider themselves entrepreneurs, and 8.7% (13 responses) answered another, according to the figure below.

Figure 16: On the condition in relation to the activity performed
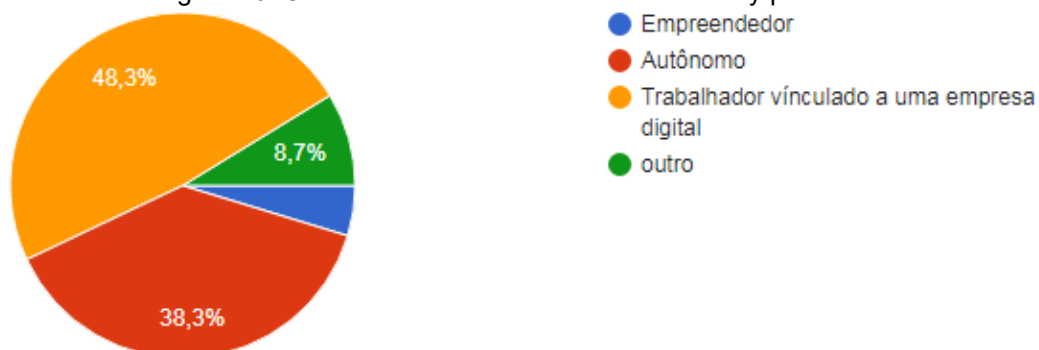
Source: Field research Dec/24 and Jan/25

When asked if drivers and app delivery workers were affiliated with any union or association, the vast majority, 64.2% (95 responses) answered that they are not affiliated, while 35.8% (53 responses) said they are affiliated with a union or association.

In contrast to the previous question, the vast majority, 73.8% (110 responses), answered yes when asked whether app workers should have their own union, while 26.2% (39 responses) answered that they should not have their own union.

The figure below shows the main leaders of app delivery workers in Brazil, highlighting the figure of Edgar Silva (the Gringo), who are together in the construction of ANEA (National Alliance of App Deliverers).

Figure 17: Edgar (Gringo) at the Tripartite Commission with the government, 2023.

Source: Google.

Finally, the last questions dealt with the participation of app workers in groups on social networks. When asked whether or not they participated in any group on social networks, the majority (57.5% (84 responses) answered yes, while 42.5% (62 responses) said they did not participate in any group on social networks.

When we asked, in the last question, which group or groups participated, we obtained numerous answers. As it was an open question, there was no Google forms tabulation, and some groups listed by the 72 answers were: Amabr, Sindtap, Forasteiros, Futdriver, Grupo de Motoboy SP, Entregadores do Ifood, 99 Taboão da Serra, Justiceiros, Unimob, driver Pará, central Belém, Aliados Motofrete, Alerta Motoboy, Entregadores Lalamove, Km express, Família duas rodas, família 60km, and so on.

DISCUSSION

From the results of our field research we want to focus on the central aspects that led us to this research, namely, the expropriation of labor time by digital platforms, the "indirect" expropriation of labor instruments (car, motorcycle, bicycle, cell phone, internet), the despotic control of labor by these platforms through algorithmic control, and the nature of the activity of these workers in these digital control companies.

As we saw in our survey, the majority of app workers, 73.3%, need more than 9 hours of work per day to ensure their livelihood and replace what they spent on their "means of reproduction", on fuel, internet, wear and tear on parts, etc. With the aggravating factor that 15.3% extend their working hours between 13 and 15 hours a day and some more than 15 hours a day to ensure the reproduction of their workforce. We also found that the majority.72% of these workers need to work six to seven days a week to ensure an income that replaces costs and maintains their social reproduction.

Such intensity and pace of work we had only seen in the first period of the industrial revolution, in the factories of England, particularly in the matchmaking industries, where half the workforce were 13-year-old boys and teenagers under 18. According to Marx, "the working day varied between 12, 14 and 15 hours, with night work, irregular meals, as a rule in the workplace itself, plagued by phosphorus" (Marx, 2024, p.286).

It is these cruel refinements of the so-called "fourth industrial revolution" that we witness every day on the streets of Brazil, on four or two wheels. Any resemblance to the daily lives of delivery workers and Uber drivers is purely coincidental!

Marx had written in *the Grundrisse* that the entire political economy of capitalism boiled down to the question of time (McLellan, 2023, pp.452-453). "Saving time, this is ultimately reduced to the entire economy" (Marx, 2011, p. 118). But of course this time is expropriated from someone, from one class, the working class, in favor of another class, the bourgeoisie that controls the means of production and exchange.

In platform capitalism, where the latest and most powerful technological creations brought by science are presented, especially the internet and artificial intelligence, the expropriation of labor time takes place under this sign, materialized around an application driven by algorithms.

Marx will also say that "In capitalist society, free time is produced for a class, transforming the entire life time of the masses into labor time" (Marx, 2017, p.597).

Here it is necessary to resume a decades-long sociological debate on the issue of the control of working time. Some authors, such as Abílio (2020) speak of "Toyotism" and its *just-in-time* system to characterize work on digital platforms. According to this author,

> "Toyotism, understood more broadly and deeply than just a new form of organization of the production line... its central aspect is the transfer of part of the production management to the worker himself. This management remains subordinate and controlled, engendering new forms of engagement and disciplining that are based on the participation and active contribution of the worker to the increase of his own productivity" (Abílio, 2020).

The author adds that "it is also necessary to highlight that the transformation of the worker into *a just-in-time worker* is also related to the power of monopolization that the companies that lead uberization have been having". (Abílio, 2020)

However, if we analyze it from a historical and theoretical point of view, as Braverman (1987) did in his work, we have a marriage between a modernized Taylorism under the aegis of artificial intelligence, extremely despotic by its nature and imbrication with algorithms, where the separation between those who do the task and those who perform it is clear, and Toyotism, whose essence is an overexploitation of the time and intensity of the work of the working class, allied to the process of outsourcing.

Regarding Taylorism, Braverman's conclusions say a lot about what we are dealing with here:

> Thus, if the first principle is the collection and development of work processes as the exclusive responsibility of management – together with the reciprocal, the absence of this knowledge among workers – then the third principle is the *use of this monopoly of knowledge to control each phase of the work process and its mode of execution.* Braverman, 1987, p.108).

Perhaps the neologism *tayotism* (a mixture of Taylorism and Toyotism) fits well to characterize this new model of labor exploitation.

Many researchers debate about the mechanisms of control of the time and life of digital platform workers, wondering how it is possible for millions of people around the world to submit to this despotic regime of control, as was done in manufacturing and in the modern factory (Marx, 2024). Some have even dedicated their research to talking about the most important mechanism that makes this system of time control and the work of platforms work: the algorithm.

THE ALGORITHMIC MANAGEMENT OF THE WORK PROCESS IN DIGITAL PLATFORMS

Thus, Kreft (2021), a Polish author, speaks of the algorithm as a new "demiurge" of the contemporary era, with as much power as the demiurge of the philosopher Plato in his "Timaeus". In the new times of information technology "Demiurge is a convenient metaphor for the presentation of the algorithm: mysterious, free of errors, resistant to influence, free of human weaknesses. A transcendent being."

Another author, John Denaher (2016, p.3) suggests that we are in the "era of algocracy", the world governed by algorithms.

> "While many are concerned about the concealment of algorithmic decision-making, I argue that there is an equally serious problem regarding its opacity... I argue that the

increasing reliance on algorithms gives rise to the threat of algocracy – a situation in which algorithm-based systems structure and restrict opportunities for human participation and understanding of public decision-making. This is a significant threat, difficult to accommodate or resist."

But, what is an algorithm? It is nothing more than "a sequence of steps used to solve a problem. The sequence presents a unique method of resolving an issue by providing a particular solution" (Mueller & Massaron, 2018, p. 11). According to these authors, for a process to represent an algorithm it must be "finite", "well defined" and "effective", that is, "at some point it must solve the problem", also "its series of steps must be precise and present comprehensible sequences", and it must also "solve all cases of the problem for which it was defined"[6] (idem, p, 11).

It is true that companies and governments are betting more on algorithms and artificial intelligence to manage their businesses and public policies. However, we cannot lose sight of the fact that algorithms are not neutral, they obey the commands of a general staff, which includes programming professionals and the holders of economic power in a company; algorithms ultimately reflect the thoughts of a ruling class that is at the head of companies and the state. They, the algorithms, organize the step by step that the bosses and big capitalists want them to organize. This is very easy to see when there is a brake or strike of delivery workers, when the bosses, owners of the application, instruct the programmers to send via algorithms a higher price for deliveries, precisely on the day of the brake or strike, as a way to avoid a large adhesion of the category to the movement. These are the old manoeuvres of the class struggle.

But even algorithms have "fissures", as Ferrari and Graham (2021) noted, which are projected through "manipulation, subversion, and disruption" by app workers when an exploited class of app workers from large multinational companies decides to fight. We saw this in Brazil, in the first app brake in history in July 2020. But we had already seen this in the London strikes in 2016 and during the Deliveroo delivery workers' strike in Brighton, England, in 2017.

Sociologist Callum Cant, who worked for eight months at Deliveroo in Brighton and actively participated in the conflict, analyzed in his book *Delivery Fight*, algorithmic management as an important instrument for controlling the work process of delivery workers, but also its failures in controlling this work.

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[6] The authors presented a table with seven types of algorithms that can be useful for various types of data analysis: 1.A* (star); 2. Balanced Tree (AVL); 3. Two-way search; 4. Binary Tree; 5.Search width; 6. Brute Force; 7. In-Depth Search. For example: Description of A*: This algorithm tracks the cost of nodes while exploring them using the equation: $f(n)=g(n)+h(n$ (Mueller & Massaron, 2018).

"Deliveroo's automated management follows the same pattern of technological development for the benefit of bosses, not workers... Algorithmic management, such as the system of unskilled factory labor, is designed to increase the exploitation of labor with the aim of providing a competitive advantage to bosses who invest in this technology" (Cant, 2021, pp. 84-85)

This competitive advantage would be structured in four types of gains provided by Deliveroo's algorithmic management system: 1. it increases the complexity of the low-cost work coordination process; 2. Expands the amount of data that can be collected in the work process; 3. Eliminates the most obvious source of human error; 4. Algorithmic management can be administered from a centralized office of continental reach instead of regional headquarters.

Comparing the face-to-face Taylorist control system with the algorithmic control run by Deliveroo, Callum Cant notes that the former was more efficient, as the flesh-and-blood bosses had two roles.

"In addition to maximizing the efficiency of the work process and coordinating workers' efforts, they discipline the workforce – they make sure that their subordinates are engaged, do not strike, and work properly" (Cant, 2021, p.86). In the case of the automated system with the use of algorithms, the weaknesses are exposed, when, for example, Deliveroo paid an hourly rate plus a bonus for delivery, "several workers managed to circumvent the system and expose it to ridicule"; Because the management system was fully automated, the algorithm could only perform a portion of its function, "it was possible to coordinate the work process with incredible precision and efficiency, but there was no way to discipline the delivery workers." The app's monitors only know the location of the delivery person, they do not know either the delivery workers or the city where they work; hence the function of intensifying work, one of the key components of a control system, ended up being lost.

There are other examples that expose the cracks and weaknesses of the algorithms, such as at an airport, at peak hours, the couriers collectively agree to turn off the app to force the algorithm to increase the price of the ride; Categorically, the couriers confused and deceived the algorithm, as it thought that there were not enough drivers available at that airport. This was reported by Ferrari and Graham (2021):

"Another example is Uber and Lyft drivers at Reagan National Airport in Washington D.C., simultaneously shutting down their apps for a minute or two to trick the app into thinking there are no drivers available, collectively causing a temporary price increase."

However, we have to admit that algorithmic control, even when circumvented by the workers, *does not lose* its power and effectiveness in controlling the work process, because

they work with an extremely desperate real situation: the need to earn a substantial income on the part of the workers; as the president of Sindtapp, Euclides Magno, told us, "we are one hundred percent subordinated to the algorithm... For example, when the cell phone battery is low, a message arrives 'Put your battery to charge... Isn't that manipulation? Not only are they manipulating but also directly inspecting us... This is a crime, they are invading your autonomy..." (Interview conducted on 01/06/25, Belém/PA).

Hence, if the worker does not fit into the algorithmic management, they suffer the punishments of the system: blockades and definitive disconnection from the platform. In the brakes held in Brazil, several leaders of the movement were blocked by the apps, which generated more revolt and indignation.

The only possibility of breaking the power of control of the algorithm is through individual and collective resistance, as happened in Spain, with the approval of the Rider Law. In addition to gaining recognition as formal workers, the delivery workers of the Spanish State also achieved a very important claim for the control of the work process, which was transparency in algorithmic management. Article 64.4 of the Spanish Workers' Statute incorporated a letter *d* with the following wording, where the worker must

> "To be informed by the company of the parameters, rules and instructions on which the algorithms or artificial intelligence systems are based that affect decision-making that may affect working conditions, access and maintenance of employment, including the definition of profiles" (FGV, p.10).

THE ISSUE OF THE "EXPROPRIATION" OF THE MEANS OF REPRODUCTION OF WORK ON DIGITAL PLATFORMS

As we could see in our field research, most app workers, whether four-wheeled drivers or two-wheeled delivery workers, have their own vehicle or motorcycle; A small part still finances their car or motorcycle.

What leads most app workers to work more than 12 hours a day, for 6 or 7 days a week, to earn a weekly income between R$ 706.00 and R$ 1,412.00, according to the result of our survey?

How is it possible to maintain despotic control of the work of delivery workers and app drivers through algorithms and at the same time get these workers to "lend" their work instruments (car, motorcycle, cell phone, internet) to make profits from large digital platform companies?

It is an objective process, which can only be explained by the recent transformations of the capitalist mode of production, transformations that arose from its chronic crisis (Moreno, 1982), which peaked in the years 2007-2009, which many authors have classified as the worst crisis in the history of capitalism, greater in scale and dimension than the crisis

of 1929, Unlike the crisis of 1929, where there was the former USSR with the Stalinist leadership at the head of the Workers' State to capitalize on the wear and tear of capitalism, this time the crisis of the years 2007-2009, when capitalism was suspended in the air and had to resort to extreme measures of the socialist arsenal such as the nationalization of banks and large insurance companies, This time there was no "socialist" country or any recognized leadership of the workers' movement to put forward as an alternative.

It is always in moments of acute crisis that the bourgeoisie and its mode of production bet all their chips on technological changes, to continue surviving as the dominant social class, otherwise it would leave the way free for socialism or other alternatives of societies without private property to emerge. In this regard, Mandel had already analyzed the contradictions of what he called "late capitalism":

> "All it proved was that in the imperialist countries, given the existing technology and productive forces, there are no "absolutely desperate situations" for capital in a purely economic sense, and that a long-term failure to carry out a socialist revolution can ultimately conceive of the capitalist mode of production a new term of life, which the latter will utilize, then according to its inherent logic: as soon as the rate of profit rises, it will intensify the accumulation of capital, renew technology, resume the incessant search for surplus value, average profits and superprofits and develop new productive forces" (Mandel, 1985, p. 155)

Just as in the first expropriation of the capitalist mode of production, analyzed by Marx (2024) where peasants and self-employed workers were expropriated of their land and their tools, freeing up labor for the nascent manufacture, so also in the current stage of chronic crisis of capitalism, the "fourth industrial revolution" or 4.0, which has in robotics, in artificial intelligence and digitalization its substrate, it has expropriated workers from their formal jobs to throw them into the clutches of a digital bourgeoisie to satisfy its profits with the most precarious and inhumane forms of work. It is a new phase of "unproductive" restructuring of capital.

In this question of a new phase of the advance of capital over the working class, it is necessary to undo some theoretical confusions around categories that were outlined by Marx in *Capital*.

Some authors, such as Amorim & Moda (2020), have insisted on the thesis that the application that companies launch to recruit workers and start the process of labor exploitation would be "the main means of production" of this new phase of capitalism:

> "We are arguing, therefore, that in this form of work the application is the central productive force and the one that allows the subsumption of the collective worker to capital. Just as the machine tool was for capitalism in the eighteenth and nineteenth centuries, the application presents itself as a central component of the service industry based on digital platforms, that is, the central means of production by which management ensures how work should be performed." (Amorim & Moda, p. 69).

We disagree with this argument that has no support either in practice or in theory. We just need to go back to the beginning and conceptualize means of production. What is meant by "means of production" in the literature of political economy and in Marx himself are all the machines and infrastructure necessary for the production of commodities that will be sold on the market. In the case of factories, machines are the main means of production, as well as robots, and everything that is coupled to these machines and robots will be auxiliary instruments, such as software and computer programs, as well as artificial intelligence, which make it possible for machines to perform their function without the need for direct human labor, Living work is also the case with robotics, where robots are moved by software and artificial intelligence to perform their functions.

In the case of work on digital platforms, specifically in the case of drivers and app delivery workers, large companies such as UBER, 99, Ifood, Loggi, among others, only provide software powered by artificial intelligence under the command of algorithms. Those who provide in practice the "means of production" such as cars, motorcycles, cell phones, the internet, are the workers of the apps. And here we need to make a correction about the confusion brought by these authors who speak of "means of production". In fact, for us, they are means of reproduction, because we are in the sphere of services, of the circulation of capital; no product is being manufactured by running on four wheels or on two wheels; only, in the end, satisfying a desire of the customers who access the applications.

In this regard, Cant (2021) provided us with a very realistic theoretical explanation when he worked as a delivery driver for Deliveroo:

> "When I was working for Deliveroo, there was one thing I couldn't understand. I was responsible for providing the bike, phone, electricity, and mobile data I needed to work. How did this change things?..."I own practically all the means of production, except the app" (Cant, 2021, p.100).

And he added:

> "In the end I ended up finding my answer. Instead of a transformation in the bowels of the capitalist mechanism, platform capitalism represents only a change in its most apparent surface... The situation of platform workers is the same as that of the window cleaner who needs to bring his own spray bottle with soap and water, the cook who needs to use his own knives or the carpenter who needs to have his own tools. They don't profit from the exploitation of their own labor – they are forced to buy things in order to work... We don't have capital – instead, we are forced to include the tools used in the production process in our 'livelihoods – the things we buy with our wages to maintain ourselves and the workforce'" (Cant, 2021, pp.101-102).

Some could speak of "outsourcing" the workforce, which strictly speaking could be correct, since large companies offer the means, the application, to intermediate customers; In the end, the company that provided the app takes its profit margin and those who sold their cars and motorcycles keep the other part of the income earned on the day, week or month.

It happens that in the process of outsourcing Toyotista, normally the parent company, the parent company, in the case of Toyota, makes contracts directly with another company that will guarantee the other 70% of the production in its plants, since the parent company maintains 30% of its original employees, with employment contracts and salaries in accordance with the legislation in force in the country. according to the analyses of Coriat (1994, pp. 118-124). Which is not the case with the relationship between Uber and its subordinates, for example, whose "contract" relationship is strictly individual, Uber or any other digital platform company does not make a contract with taxi companies or motorcycle fleet companies.

No! The "contract" is directly with the app driver or with the ifood delivery person; there is no intermediary company, except in the case of Delivery apps, where Ifood, Uber Eats, Loggi or other platforms also contract with logistics operators to pay for labor, but it is not the bulk of the process of these digital platforms. This does not mean that, with the advance of the struggles of app workers worldwide, this alternative of "outsourcing" cannot become a reality, in something similar to OL (logistics operator), a company that intermediates the hiring of delivery workers for the Ifood platform, and directly supervises the work of these delivery workers, without however maintaining an employment relationship with a formal contract.

Even the comparison made by Scolari (2023) between medieval weavers recruited by the nascent bourgeoisie, giving them autonomy to produce in their homes and workshops, in the famous *Putting Out System* and app workers would not fully fit into the current phase of platform capitalism. In that medieval system, a group of merchants-entrepreneurs provided raw materials to peasants and their families so that they could deliver the wool or cotton as finished products and receiving in exchange a compensation fee, as a way to break the medieval corporations; In platform capitalism, the bourgeois only provide the app, but it is the workers who enter with all their "means of production" (car, motorcycle, smartphone, internet).

Here we agree with a premise raised by other authors and reproduced by Srnicek (2018), that this bourgeoisie is **"a new class that does not own the means of production, but owns the information"** – despite Srnicek's reservations when he states

that "this argument is lost when it tries to place this class outside capitalism" (Snircek, p. 41).

THE DIGITAL PROLETARIAT AND THE STRUGGLE FOR THE REGULATION OF RIGHTS

All the discussion we have made in the previous items about the control of the time and life of digital platform workers, as well as the fraudulent expropriation that is made of their "means of reproduction" (cars, motorcycles, cell phones), has already been partially resolved, in some countries, by the struggle that these new proletarians have waged in their countries. The examples of nations and countries that have adopted the regulation of platforms are the expression of this struggle of the new working class.

The most categorical example so far has been the achievement of the regulation of the work of app delivery workers in Spain, the famous "Rider Law" (in English the motorcycle driver is called rider), based on Decree-Law 9/2021, of the Spanish Ministry of Labor. This Decree was the result of the struggles of app workers in Spain, who since 2018 have been striking against the large companies installed in Barcelona and throughout Spain, but also of an individual request by a worker against Glovo. After three years, in September 2020, the Supreme Court of Spain handed down the sentence, recognizing the employment relationship between the rider and Glovo's platform (Cepi/FGV, 2021, p. 3).

Even with the approved regulation, large companies, such as Glovo, did not comply with the Decree and arranged numerous forms of legal battles in the Spanish Courts. It was only in December 2024 that Glovo officially declared that all its workers would become salaried workers, after being fined 205 million euros (1.31 billion reais) by the Ministry of Labor for not complying with the Rider Law and also because of an action by its Anglo-Dutch competitor, Just Eat, which appealed to the courts for unfair competition from Glovo, demanding compensation of 295 million euros (1.88 billion reais).

The scenario pointed out by Cant (2021), by placing the two options for Deliveroo couriers and the future of digital delivery platforms, ended up not being realized in reality. This author said:

> "Deliveroo riders are part of a movement of platform workers that – should it continue to develop – will end up facing a defining struggle for the future of the platforms themselves. The options on the table are probably 100% automated food delivery and mass unemployment, or the expropriation of the platform and its control by workers. The balance of power between the classes is what will determine the winners" (Cant, 2021, p.53).

We have seen that, due to the outcome of the Rider Law in Spain, none of the alternatives listed by Cant have been presented so far. On the contrary, this digital

bourgeoisie ended up adapting to the new times, of an entire category that fights worldwide against the precariousness and overexploitation of labor.

In the end, the owners of the digital platforms ended up doing the cost-benefit ratio, that is: if in the end it is no longer profitable to sign the work card and submit to pay labor rights, to have to pay millionaire fines to their competitors and the government?

Another calculation made is: with the obligation to pay nominal wages established by law, would the profits not be maintained in the same way, since now all the income that comes in from the work of these delivery workers goes directly to the company and it pays what is in the law and keeps the rest of the income? We would have to do a calculation to see if this hypothesis is valid or not, which we think is close to the real thing. Otherwise, what would be the point of continuing in a business that did not give any profitable return?

Today, the market value of Uber Technologies BDR is US$ 139.97 billion (or R$ 811 billion), according to the tradingview.com website, more than ten times more than what it was worth in 2017, as we saw in Slee (2017, p.113). Its total revenue in 2024 was $43.98 billion ($21.43 billion in the U.S. alone) and net income was $9.86 billion (Investing.com), with only 31,100 direct employees. In Latin America, revenue was US$ 2.7 billion, according to the website https://br.tradingview.com. As shown in the figure below.

Figure 18:

Encerramento do Exercício:		2020 31/12	2021 31/12	2022 31/12	2023 31/12	2024 31/12
Receitas totais	🔒	🔒	17.455	31.877	37.281	43.978
Crescimento das receitas totais	🔒	🔒	+56,7%	+82,62%	+16,95%	+17,96%
Custo das receitas	🔒	🔒	11.228	22.072	25.146	29.383
Lucro bruto	🔒	🔒	6.227	9.805	12.135	14.595
Crescimento do lucro bruto	🔒	🔒	+43,55%	+57,46%	+23,76%	+20,27%

Source: https://br.investing.com/equities/uber-technologies-income-statement

In the case of Brazil, the only data that Uber provides us with is that it has transferred R$ 140 billion to its delivery workers and partner drivers in its ten years of existence in the country (Facts and Data about Uber, 04/12/24, uber.com). If we take into account the number of drivers and delivery workers disclosed by Uber itself around 1 million across the country, each driver or delivery person would have received about R$ 14,000.00 (fourteen thousand reais) per year, which would be R$ 1,166.66 per month. A number completely different from the survey we conducted, where the majority 70.3% of respondents make an

income between R$ 300.00 and R$ 1,000.00 every week after deducting costs. If we had more transparent numbers from Uber itself, we could go after the true amounts paid to app workers.

In the case of the sample of our survey, considering the weekly income without costs, we obtained a weekly average of R$ 1,176.25; considering that Uber's "intermediation fee" is 30% - there are reports that Uber would keep up to 60% of the earnings of app drivers because this fee has become fluctuating since 2018, before it was set at up to 25% of workers' income – we would then have a discount of R$ 352.87 for this rate. If we were to hypothetically apply[7] Marx's formula of the rate of surplus-value in Capital, m/v, where **m is** the surplus-value and **v** is the variable capital (what is paid for with wages), we would obtain a rate of surplus-value of about 42.85%, which is quite high; if we were to calculate this rate with all the costs that the workers had to cost fuel, internet and vehicle maintenance, this rate would exceed 50%. The rate of surplus value represents, for Marx, "the precise expression of the degree of exploitation of labor power by capital or of the worker by capitalist" (Marx, 2024, p.254).

It is true that most of these companies had losses in their early years, and yet the capitalist-rentiers continued to invest in these businesses, always with the aim that these companies would become a unicorn (parlance for companies that reach a value of US$ 1 billion on the stock exchanges) and start to yield billions on the stock exchanges for those who financed them.

In the case of Uber, of its expansion in the United States and in the world, Slee (2017) tells us that this expansion was "driven by an unprecedented succession of venture capital contributions", and that, in August 2015, Uber had raised US$ 7 billion, "more than the sum of all the other companies in the Sharing Economy in North America", and by April 2017 this amount had reached the figure of US$ 11 billion, including debt financing (Slee, 2017, p.113). Who financed these contributions, also according to Slee (2017, p. 113) was a high caste of venture capital firms in the Sicilian Valley, companies such as Google Ventures, Goldman Sachs, the Qatar Investment Authority, the Saudi Arabian Public Investment Fund, the Chinese internet company Baidu and the CEO of Amazon, Jeft Bezos.

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[7] We hypothetically pose because it is still a controversial debate among theorists the question of whether or not the service sector – where app workers are located – produces surplus value. Even though Marx shuffled, in Book II, chapter 1 of Capital (Marx, 2023, p.65) the hypothesis that the transport sector, because it is strategic for the circulation of goods and capital, generated surplus value, even so, in the case of app workers, the application of the surplus value rate formula is somewhat compromised because workers are the owners of their "means of production", but they do not manufacture any commodity for capital other than "money-capital."

Lenin's old maxim was applied in this case in all senses: there are no "desperate situations" for the bourgeoisie, which ends up settling for what is best for its profits in certain historical conjunctures. With the greatest capitalist economic crisis in history, they invested venture capital in technology companies, which could have worked or not; in the case of Uber it was the biggest gamble of their lives. And we saw it in the picture...that for the past four years Uber has been a profitable company.

With the trend of the new times of regulation of work on digital platforms, large companies try to use all their economic and ideological arsenal to convince workers that "autonomous" work is better, that it gives more freedom to the driver and delivery person to do their working time and income whenever they want, and so on.

One of the most emblematic examples was what happened in California (USA), the birthplace of *Big Techs*, when for the first time the Supreme Court recognized the employment relationship between platforms and workers, in 2018, hitting the hammer on its regulation. The ABC test[8] would be the instrument for verifying the employment relationship in the State of California. Then, in 2019, the state legislature expanded on the Supreme Court's decision and passed Assembly Bill 5 (AB5), granting workers in the sector full rights of a regular employee.

The reaction of the California-based digital bourgeoisie was not long in coming. In 2020, in the midst of the covid-19 pandemic, they injected more than 200 million dollars in advertising and marketing to approve a popular referendum around "Proposal 22", where digital platform companies committed to a minimum wage and the guarantee of a health plan, but excluded all the rights that would be paid with the AB5 Law, such as regulations on working hours, overtime, paid weekly rest, among others (Gonsales, Roncato and Van der Lan, 2024, p. 22). The result of the election concluded in November 2020 was predictable: Proposition 22 was approved with 58.63% (9,958,425 votes), against 41.37% (7,027,820 votes) against (Fernandes, 2022, p.226)

Here in Brazil, in the face of the offensive of the app delivery movement since the app crash of July 2020, we have seen the reaction of the two giant digital platforms, Uber and Ifood. In a survey clearly purchased by Uber and Ifood (each interviewee received R$ 20.00 in fuel to answer the interview) and organized by Folha de São Paulo between

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[8] . The ABC Test is so called because of the three questions that are asked (one for each letter) to detect whether the worker has an employment relationship or is self-employed (independent contractor). Question A: Is the worker free from the control and direction of the service taker with regard to the performance of the work, both under the terms of the contract and in relation to the factual reality itself? Question B: Does the worker provide services that are outside the usual scope of the borrower's business? Question C: Is the worker habitually engaged in an independently established trade, occupation, or business whose nature is similar to the work performed for the service taker? (Fernandes, 2022, pp. 220-221)

January and March 2023, we clearly saw the attempt to frame drivers and delivery workers as self-employed in two clearly biased questions in the item "view of the bond", CLT x Self-employed.

The question favorable to the companies was the following: "Prefer to "Maintain the current model, where the driver/delivery person has the autonomy to choose their own schedules and refuse trips at any time, but without access to the labor benefits provided for in the CLT for employees"; The question in favor of the regulation was the following: "Prefer to have an employment relationship to access the labor benefits provided for in the CLT, but the platforms define working hours and remuneration and workers cannot refuse demands in real time or decide when to drive / make deliveries without authorization under penalty of dismissal or sanctions".

It is logical that with these questions the answers would only come in favor of the companies. Of the 1,800 drivers interviewed, about 75% answered that they prefer to keep the current model; And of the 1,000 delivery workers interviewed, the index was almost identical, about 77% prefer the current model. Of the total of 2,800 interviews, 75% were in favor of the current model and 14% in favor of the CLT.

This research shows that there is a desperate attempt by the two large giant companies that operate in Brazil to avoid until the last minute that the regulation of work on digital platforms comes out.

In our field research, we saw that there is a desire expressed by the majority of respondents, about 45.3 or 67 responses, to have their minimum rights regulated through Bill 12/2024 that is being processed in the National Congress. In previous surveys, before this new proletariat entered the scene with its brakes, usually the majority categorically answered no, but this time, according to our survey, only 35.1% or 57 responses said they were against the regulation of rights in law. It is quite a great advance in consciousness. It means that this new proletariat begins to move from the condition of the "class in itself" to a condition of the "class for itself".

In his work *The Poverty of Philosophy*, Marx had drawn this conclusion about the industrial proletariat that was beginning to fight for its rights: "Thus this mass is already a class in relation to capital, but it is not yet a class in relation to itself. In the struggle, of which we have only mentioned a few phases, this mass gathers, constitutes itself as a class for itself. The interests it defends become class interests..." (Marx, 2018, p.154).

CONCLUSION

In the present work, we try to unveil the double expropriation of app workers by large multinational companies in the sector.

We have seen that this process was only possible for an objective matter: the greatest economic crisis of capitalism in history, which led capitalists to invest their money in new experiments, in *startups* powered by new information technologies, as was the case of Uber, gestated in Silicon Valley, California, in 2009.

However, in order to conquer an army of more than five million people around the world, in this process that Slee (2017) called "uberization", and subordinate it to the interests of large multinational companies that command platform capitalism, it was necessary to ideologically win these workers over to the thesis of entrepreneurship, autonomy, and "being your own boss". As Euclides Magno, president of Sindtapp, told us, in the interview they "sell a false dream, a non-existent Eldorado, when it says 'own your own business', have autonomy... They came in with absurd, ferocious marketing, making the population believe in this autonomy... Everything was planned, the little song in the app... they brainwashed the driver into believing that he is a partner of the company

As soon as they were entwined in the spider's web of "autonomy", "freedom", "choosing the time they want to work", the second step was to bring back the past of unbridled exploitation varnished with the highest technology of the "fourth industrial revolution", that is, digitalization and artificial intelligence coupled in a simple smartphone to achieve their goal: to exercise a virtual despotism worse than or equal to the factory despotism analyzed by Marx. It was the decisive step towards consummating the virtual subordination of the worker to the class interests of platform capitalism.

Uberization achieved an unprecedented feat: bringing together two work processes born, one in childhood and the other in the maturity of capitalism, which, at first, would be like water and oil, but which, due to the necessity of the capital accumulation process, ended up meeting in this "fourth industrial revolution".

 On a simple cell phone or smartphone, Taylorism (in reference to the Taylor's system) and Toyotism (in reference to the Japanese-born Toyota system) are connected, like Siamese brothers. Taylorism, as Braverman (1987) well analyzed, preached an absolute separation between those who command (the bosses and their managers) and those who execute (the workers); Toyotism, on the other hand, granting an air of "freedom" and "autonomy" inside the factories through teamwork, raised the degree of labor intensity to the nth power.

Platform capitalism, based on algorithmic despotism inspired by Taylorism or "algocracy" as Donaher called this process, mixed with the ideology of freedom and "autonomy" inspired by Toyotism, has brought to modern society the most brutal form of labor exploitation, an unlimited labor intensity, which leads this new digital proletariat to run, whether on two or four wheels, more than 12 hours a day to receive measly weekly earnings. having to mandatorily pay a fee unilaterally stipulated by the technology company.

This is why this platform capitalism is neither Taylorism nor Toyotism, it is both at the same time, which have come together in the twenty-first century for the most complete plunder of the labor force, to establish a "new wave of precarization," as Slee pointed out. Neither Taylorism nor Toyotism, but a new denomination deserves to be made to baptize this new process of exploitation, which we call *Tayotism* (the junction of Taylorism with Toyotism).

Some authors, in a romantic way, as utopian socialists did in relation to industrial capitalism[9], argue that it is enough for workers to self-organize into cooperatives, manufacture their own application and get rid of the evils and monopoly of digital platforms. It would be that simple and very easy. It turns out that even a workers' cooperative can be hooked by the capitalist monopoly and lose its original objective, which was to "get out" of economic dependence and capitalist slavery. They could only subsist and present a progressive potential, according to Fuchs (2021) "if they are part of a movement towards a socialist society, fighting with other people against capital in collective political campaigns" (Fuchs, 2021, p.222).

In our view, many possibilities open up to combat this double expropriation of platform capitalism and the bourgeois class with the spontaneous movement, which is beginning to take organizational form, of digital platform workers. In their "brakes" movements, as we saw in Brazil in 2020[10] and now on March 31 and April 1, 2025, in one of the strongest brakes in its history, and in the strikes on the European continent and in North America itself against the precariousness brought by the apps.

Finally, it is necessary to carry out more in-depth and systematized studies on this character of platform capitalism and its double expropriation of this digital proletariat. Mainly

[9] Robert Owen. An English utopian socialist, he is considered the father of the cooperative movement in the United Kingdom, according to Sandoval (2021). "He advocated the creation and expansion of cooperative villages, transforming capitalism from within – which is quite different from saying that we need a revolutionary class struggle to transform capitalism" (Sandoval, 2021, p.216).
[10] Cf. SANTIAGO, João. When New Proletarians enter the scene: the brake (strike) of app delivery workers in Brazil in July 2020. **Research, Society and Development**, v. 13, n. 1, e14913144896, 2024(CC BY 4.0) | ISSN 2525-3409 | DOI: http://dx.doi.org/10.33448/rsd-v13i1.44896, 2024.

studies in the area of Social Sciences and Economics on exploitation and the question of surplus value, what subordination is really about workers in relation to digital platforms, what is the future of this young proletariat that emerged from the bowels of the worst crisis of capitalism in history, etc. The way is open for multiple contributions.

REFERENCES

1. Abílio, L. C. (2020). Uberization: The era of the just-in-time worker? *Journal of Advanced Studies, 34*(98), 111–126. https://doi.org/10.1590/s0103-4014.2020.3498.007

2. Alexandre, R. (2023, August). Brake on apps and working conditions [Oral interview]. In J. Santiago (Interviewer), *When new proletarians enter the scene: The app brake in Brazil in July 2020*. Faculty of Social Sciences, UFPA.

3. Amorim, H., & Moda, F. B. (2020). Work by app: Algorithmic management and working conditions of Uber drivers. *Revista Fronteiras – Estudos Midiáticos, 22*(1), 59–71. https://doi.org/10.4013/fem.2020.221.06

4. Antunes, R. (2018). *The privilege of serfdom: The new service proletariat in the digital age*. Boitempo.

5. Antunes, R. (2019). Digital proletariat, services and value. In R. Antunes (Ed.), *Wealth and misery of labor in Brazil: Digital work, self-management and expropriation of life* (pp. 17–36). Boitempo.

6. Antunes, R. (Ed.). (2020). *Uberization, digital work and Industry 4.0*. Boitempo.

7. Antunes, R. (Ed.). (2023). *Icebergs adrift: Work on digital platforms*. Boitempo.

8. Braverman, H. (1987). *Labor and monopoly capital: The degradation of labor in the twentieth century* (3rd ed.). LTC.

9. Cant, C. (2021). *Delivery fight! The struggle against the faceless bosses* (A. Boide, Trans.). Veneta.

10. Center for Teaching and Research in Innovation at FGV São Paulo Law School. (2021). *Thematic briefing #6: Spanish regulation of platform work: Social dialogue and algorithmic governance in focus – Version 1.0*. FGV Direito SP.

11. Chaves, A., & Santiago, J. (2025). Artificial intelligence and work: Brazilian challenges. *Revista Aracê, 7*(2), 8304–8317.

12. Coriat, B. (1994). *Thinking inside out: The Japanese model of work and organization* (E. S. da Silva, Trans.). Revan; UFRJ.

13. Danaher, J. (2016). The threat of algocracy: Reality, resistance and accommodation. *Philosophy and Technology, 29*(3), 245–268. https://doi.org/10.1007/s13347-015-0211-1

14. Danaher, J. (2020). Freedom in an age of algocracy. In *The Oxford handbook of philosophy of technology* (pp. 1–32). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780190851187.013.16

15. Fernandes, J. R. L. (2022). The classification of the worker as an "employee" in US law: ABC Test, Dynamex case, Law AB-5, Proposition n. 22 and the wide repercussion of the legal debate initiated in California. *Electronic Journal of the Judicial School of the TRT of the Sixth Region, 2*(2), 208–237.

16. Ferrari, F., & Graham, M. (2021). Fissures in algorithmic power: Platforms, codes and contestation. *Revista Fronteiras – Estudos Midiáticos, 23*(2), 207–219. https://doi.org/10.4013/fem.2021.232.14

17. Fuchs, C. (2021). Digital work and alternative platforms. In R. Grohmann (Ed.), *Digital work labs: Interviews* (pp. 161–174). Boitempo.

18. Future of Work by App. (2023). *Datafolha*. Datafolha.

19. Gil, A. C. (2017). *How to develop research projects* (6th ed.). Atlas.

20. Gonsales, M., Roncato, M. S., & van der Laan, M. (2024). Platformization of work, the international scenario and Brazil. In R. Antunes (Ed.), *Platform work: Regulation or deregulation? The example of Europe* (P. Davoglio, Trans., pp. 143–168). Boitempo.

21. Grohmann, R. (Ed.). (2021). *Digital work labs: Interviews*. Boitempo.

22. Magno Júnior, E. (2025, January). I work on digital platforms [Oral interview]. In J. Santiago (Interviewer), *Work on digital platforms: A double expropriation*. Faculty of Social Sciences, UFPA.

23. Mandel, E. (1985). *Late capitalism* (2nd ed., C. E. S. Matos, R. de C. Andrade, & D. de A. Azevedo, Trans.). Nova Cultural.

24. Marx, K. (2011). *Grundrisse: Economic manuscripts of 1857–1858 – Sketches of the critique of political economy* (M. Duayer, N. Schneider, & A. H. Werner, Trans.). Boitempo.

25. Marx, K. (2017). *Capital: Critique of political economy* (Book 1, 2nd ed., R. Enderle, Trans.). Boitempo.

26. Marx, K. (2018). *The misery of philosophy* (J. P. Netto, Trans.). La Fonte.

27. Marx, K. (2023). *Capital: Critique of political economy* (Book 2, Vol. 3, 19th ed., R. Santana, Trans.). Civilização Brasileira.

28. Marx, K. (2024). *Capital: Critique of political economy* (Book 1, Vol. 1, 41st ed., R. Santana, Trans.). Civilização Brasileira.

29. McLellan, D. (2023). *Karl Marx: Life and thought* (J. A. Clasen, Trans.). Vozes.

30. Miranda, A. (2023, September 8). *Uber's intermediation fee: What is it and what is it for?* Olhar Digital. https://olhardigital.com.br/2023/09/08/carros-e-tecnologia/taxa-de-intermediacao-da-uber-o-que-e-e-para-que-serve

31. Moreno, N. (1992). *Theses for the update of the Transition Program*. CS Editora.

32. Mueller, J. P., & Massaron, L. (2018). *Algorithms for laymen* (J. Araújo, Trans.). Alta Books.

33. Pereira, A. S., Shitsuka, D. M., Parreira, F. J., & Shitsuka, R. (2018). *Methodology of scientific research*. UFSM. https://repositorio.ufsm.br/bitstream/handle/1/15824/Lic_Computacao_Metodologia-Pesquisa-Cientifica.pdf?sequence=1

34. Pressure in Spain makes iFood competitor and Uber Eats hire their delivery workers. (2024, December 2). *Brasil de Fato*. https://www.brasildefato.com.br/2024/12/02/pressionada-na-espanha-concorrente-do-ifood-e-uber-eats-contratara-seus-entregadores

35. Sandoval, M. (2021). Cooperatives in the culture sector and the digital context. In R. Grohmann (Ed.), *Digital work labs: Interviews* (pp. 175–188). Boitempo.

36. Santiago, J. (2024). When new proletarians enter the scene: The brake (strike) of app delivery workers in Brazil in July 2020. *Research, Society and Development, 13*(1), Article e14913144896. https://doi.org/10.33448/rsd-v13i1.44896

37. Schwab, K. (2016). *The fourth industrial revolution* (D. M. Miranda, Trans.). Edipro.

38. Scolari, F. (2023). Digital and platform capitalism: Return to a metropolitan putting out system? In R. Antunes (Ed.), *Icebergs adrift: Work on digital platforms* (pp. 85–104). Boitempo.

39. Silva, E. F., & Gringo. (2023, September). Apps and working conditions brake [Oral interview]. In J. Santiago (Interviewer), *When new proletarians enter the scene: The app brake in Brazil in July 2020*. Faculty of Social Sciences, UFPA.

40. Slee, T. (2017). *Uberization: The new wave of precarious work* (J. Peres, Trans.). Elefante.

41. Srnicek, N. (2018). *Platform capitalism*. Caja Negra.

42. Uber. (2024). *Facts and data about Uber*. https://www.uber.com

43. Zuboff, S. (2021). *The age of surveillance capitalism: The struggle for a human future on the new frontier of power*. Intrínseca.