

# **“You exercise and you get paid for it”: Insights from bicycle delivery riders**

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## **1. Study rationale**

Commercially, the pandemic created challenges and new opportunities in logistics. As retailers closed, people shifted to online purchasing and that shift saw a substantial increase in personalised, on-demand delivery. In particular, with strict customer limits for restaurants the demand for food delivery skyrocketed and with it a rapid increase of online, app-based bicycle delivery platforms.

An unintended by-product of Government actions to slow the spread of COVID-19, specifically lockdowns and curfew, was the natural experiment on our road network. Compared to pre-COVID, our roads were empty as people were required to work-from-home and restricted in how far we could travel and the reasons for leaving home.

While bicycle food delivery services operated prior to the pandemic, there was a proliferation during the lockdown periods. Yet despite the increase in demand for food delivery services, public narrative focused on the negative aspects of the industry with research and news reports rarely featuring positive news about the bicycle delivery industry, particularly food delivery riders (Gladstone, 2019; Goods, Veen & Barratt, 2019; Timko & van Melik, 2021). However, the often repeated negative stories failed to include the views and experiences of the riders themselves.

This study was designed to fill that gap. With funding from the federal Office of Road Safety's Road Safety Innovation Fund, we set out to understand the experience of food delivery riders across the COVID-19 pandemic and now in the 'post'-pandemic period.

## **2. Study design**

The aim of this study is to understand the experience of food delivery cyclists, and through this to give them a voice in how we understand and shape the future of the industry and the road network. We used three methods to collect a range of datasets which can be triangulated to provide a comprehensive picture of delivery cyclists' experience. This included: 1) roadside observations (2020 – 2023), 2) in-depth interviews (2022 – 2023) and 3) naturalistic cycling study (2023). In total, we collected more than 300 hours of video footage and more than 50 hours of interviews.

Interviews provide crucial insights into delivery cyclists' subjective experiences, including their views on how this could be improved. Interviews do, however, have biases – e.g. recall (people don't remember their actions), social desirability bias (when people report better behaviour than their actual behaviour) and biases related to perceptions of risk (unable to calibrate people's

variants in risk thresholds, i.e. what is dangerous to me might not be considered dangerous to you). Naturalistic studies thus provide a very valuable supplement to interviews, as people are not aware they are being watched (roadside observations) or less focused on this (on-bike observations, discussed further below). The naturalistic studies were designed to gather information on issues such as near-miss and crash rates, use of infrastructure, interactions with other cyclists and other road users, use of safety equipment (e.g. hi-vis clothing), bicycle types and responses to differing conditions (e.g. weather, day v night).

To identify whether and how food delivery cyclists' experiences differ from other working cyclists, we also included couriers in both the interviews and on-bike studies. The roadside observations included both groups, as well as a wide range of other cyclists (e.g., commuters, recreational cyclists). The study included both male and female cyclists, with approximately 85% male participants in both groups. While there is no reliable data on demographics, anecdotal evidence suggests this gender split is reflective of both industries.

## 2.1 Roadside observations

Roadside poles were used to mount covert video cameras in key inner-city locations in Sydney and Melbourne. The observations were covert with video cameras mounted to an existing roadside pole, there were no signs nor announcements alerting people to the recording. This type of covert observation is critical to eliminate behaviour bias, specifically when people change their behaviour when they know they are being observed, also referred to as the spotlight or Hawthorne effect (Culyer, 2014). The lack of awareness of being observed or intervention from the researchers ensures we record typical behaviour of everyone who enters the field of view of the video cameras.

The Sydney data was recorded during- and post-COVID at locations where pop-up bike lanes had been installed. The initial observations were commissioned by the City of Sydney (during COVID, November 2020) and observations were repeated at the same sites as part of this study (November 2022) (Figure 1).

**Figure 1: Roadside observations of delivery cyclists (Sydney, 2020)**



The observations in Melbourne were selected after the recruitment of cyclists for Stage 2. During Stage 2, we identified the sections of road frequently used by delivery cyclists and the sites were selected to include a range of infrastructure types (e.g., separated bike lane or 'Copenhagen' lane, mixed traffic, tram super stop). The Melbourne observations were recorded in April 2022.

## 2.2 In-depth interviews

This study started during COVID-19 pandemic (June 2021) and with the restrictions on movement in place, our recruitment was online through social media and outdoors with street intercepts. That is, directly approaching bicycle delivery riders on the street and inviting them to be part of the study. We offered a \$50 incentive for a one-hour interview.

The in-depth interviews were semi-structured using a series of questions informed by a review of the literature on delivery cycling and street governance (Fincham, 2007; Kidder, 2016; Lee, 2018; Shinar et al, 2019; Christie & Ward, 2019; UTS Climate Justice Centre, 2019; Thorpe, 2020; Beck et al, 2021; SafeWork NSW & Transport for NSW, 2021). In particular, the questions drew on earlier European studies that had interviewed delivery cyclists (Dablane, Morganti, Arvidsson, Woxenius, Browne and Saidi, 2017; Christie & Ward, 2018). Key questions included:

- Previous cycling experience and motivation for working as a delivery cyclist
- the best things about being a delivery cyclist
- concerns about being a delivery cyclist
- where it feels safest to ride
- knowledge of and views about road rules
- what's needed to improve safety when cycling

All interviews were conducted online using Microsoft Teams or Zoom. Interviews were video and audio recorded. The automated transcription tool was used, then the transcription was reviewed for accuracy. Coding of the transcripts is being conducted using NVivo. We are examining the coded data using Grounded Theory to identify the common themes and key insights (Charmaz 2014).

## 2.3 Naturalistic cycling study

The final stage is a naturalistic cycling study that involves video recording delivery cyclists during three shifts. We attached cameras (GoPro Hero, GoPro Max) to delivery cyclists' bicycles (e.g. handlebar, front box mounting) and provided sunglasses that are fitted a camera in the bridge of the glasses (Oho). Participants have been asked to ride as they usually would including all typical routes and behaviours. Participation was incentivised with participants receiving \$250 at the end of the study.

This stage builds on an extensive background of naturalistic cycling studies conducted by the research team (Beck et al 2021; Johnson and Rose 2015; Johnson et al 2014). Previous experience has identified a limited Hawthorne effect for regular cyclists, despite being aware they are being filmed (Johnson, Charlton, Oxley & Newstead, 2010). The lack of separate cycling infrastructure or the abrupt discontinuation of bike lanes means that cyclists need to be hypervigilant about their safety and are mainly focused on the behaviour of drivers around them. This concentration means the performative aspect of being watched is minimal.

Further, we intend to analyse the GPS data generated by the GoPro cameras. These data should allow us to map the delivery cyclists route, analyse speed and provide insights at an individual and cohort level about delivery cyclist preference for roads with and without cycling infrastructure. However, we note based on previous research experience that GPS data from a bicycle mounted device can be patchy, especially in a built-up city environment.

Data collection concluded at the end of May. Data analysis will include a review of all video footage to identify the types of experiences of the delivery cyclists (e.g., start/end of trips, on-road experiences, proportion of trip without incident, crash avoidance behaviours, any crash-related incidents).

In addition, all participants completed a semi-structured exit interview. Key questions include awareness of the camera, how typical their experiences were compared to non-study shifts, any unsafe incidents and suggestions to improve safety. Coding and analysis of the exit interviews will follow the same protocol as described for Stage 2.

### **3. Description of data**

Data collection was completed for all three stages at the end of May 2023.

#### **3.1 Roadside observations**

A total of 216 hours of roadside footage were recorded in key inner-city locations in Sydney (144 hours) and Melbourne (72 hours). Data analysis is being conducted in two stages. First, all the video footage is being screened to extract variables in 8 categories:

- observation details, e.g., time;
- site details, e.g., bike lane, speed limit, on-street parking;
- temporal details, e.g., ambient light, weather conditions;
- cyclist details, e.g., identify if delivery rider, sex, bicycle type, helmet use;
- cyclist visibility, e.g., clothing colours, bike light presence/use;
- details of delivery, e.g. location of box;
- cyclists' location and interactions on the road, e.g. in bike lane, crash incident; and
- other users, e.g., other cyclists, pedestrians, scooters.

In this first, data reduction stage, 31 variables are being coded. The second stage of analysis will include an overview of all the data for each site using descriptive univariate statistics. This will then inform the multivariate analysis that will examine the changes in cycling during- and 'post'-COVID (Sydney) and compare characteristics of delivery cyclist activity between Sydney and Melbourne.

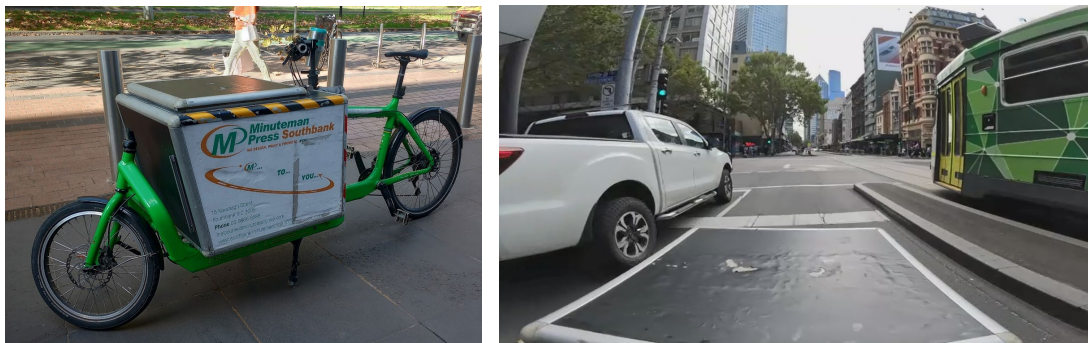
#### **3.2 In-depth interviews**

We conducted 53 in-depth interviews with food delivery riders (86%) and bicycle couriers (14%). Interviews were generally one hour in length, ranging from 45 minutes to two hours. Interview participants were mostly from Sydney (65%) or Melbourne (33%) with one participant from Adelaide.

#### **3.3 Naturalistic cycling study**

We inducted 14 delivery cyclists into the naturalistic cycling study. All but one completed the study and provided data from the camera attached to the handlebar of their bicycle (Figure 2). Each rider recorded ~10 hours of footage over three shifts, producing a total of 104 hours.

**Figure 2. Participant's bike (left) and view from the handlebar mounted camera (right)**



## 4. Preliminary insights

Our findings reveal a rich and complex picture, and one that is far more positive than previous (often sensationalist) reporting has presented. First, the demographics of delivery cyclists are varied. While some do come from marginalised groups with limited employment prospects, others choose this work from a range of options. Assumptions about the status of delivery cyclists can have unintended consequences that further marginalise vulnerable voices.

Second, gig-based employment does create challenges, though these are often overstated. Riders feel more pressure to take risks when paid per delivery than when paid for their time, and riders feel safer when supported to develop familiar routes. Models with a hub are very popular, such as that provided by MILKRUN (now defunct).

Third, riders are much more concerned about the dangers created by cars than about employment-based risks. Overwhelmingly, the changes riders want to see (micro and macro) relate to the regulation of the road environment: safer, separated infrastructure, and road rules that support a less car-oriented approach to sharing street space. The changes participants want also reflect shifts in the types of bicycles being used. In particular, longer bikes, wider bikes and cargo bikes often exceed the provision for cyclists on the road, particularly where the bike lanes are the minimum standards, in terms of width. Also, the increased use of electric bikes has been observed which can be detected by a visible battery pack or lack of pedalling. This may reflect changes in the general community as the use of e-bikes is increasing, including among older riders (Johnson and Rose, 2015).

Finally, while concerns about safety for food delivery cyclists have prompted some negative reactions, our research shows that there is much to celebrate. Many riders love their work, enjoying opportunities to exercise and to explore their cities, as well as flexibility, freedom, and variety. Participants reported delivery cycling was an easy entry into the workforce as it required minimum English language skills, and offered flexibility to fit in other employment or studies.

## 5. Recommendations for theory and/or practice

Data analysis is continuing however we anticipate that insights from this study will be useful to inform road safety policy and action that will better regulate and support delivery cyclists. Further, the findings, particularly the insights from riders (Stage 2 and Stage 3) will improve our understanding of how this mode of transport is being used and how it can be made safer, as well as the larger role of bicycle delivery in individual, on-demand delivery and as an efficient

and cost-effective part of larger supply chains. Bicycles are a much larger part of the supply chains internationally; the use of cargo bikes and trailers allow sizable quantities of goods to be delivered into congested inner-city spaces. The potential to utilise bicycles is yet to be realised in Australia. Findings from this study will help to unlock that potential.

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