Attachment 1: Analysis of Driver Earnings in Toronto's Vehicle-for-Hire Industry

On the Road

Analysis of Driver Earnings in Toronto's Vehicle-for-Hire Industry

Mischa Young, Ph.D.
Assistant professor, Université de l'Ontario Français
mischa.young@uontario.ca

Steven Farber, Ph.D.
Professor, University of Toronto
steven.farber@utoronto.ca

Mashrur Rahman, Ph.D.
Postdoctoral researcher, University of Toronto
mashrur.rahman@utoronto.ca

Final report submitted to the City of Toronto, Municipal Licensing and Standards Division, 2024

Table of Contents

Executive Summary

This report, commissioned by the City of Toronto, aims to analyze the current state of wages and employment for drivers in the vehicle-for-hire industry, with a focus on private transportation companies (PTCs) such as Uber and Lyft.

Using an 84-million record dataset of every PTC trip conducted in Toronto between January 1st, 2023, and May 1st, 2024, along with data on PTC vehicles and licensed PTC drivers, this report examines the gross wages and driving expenses of PTC drivers to assess their net earnings.

In 2023, 66,191 PTC drivers completed at least one trip in Toronto, and by the first four months of 2024, this number stood at 53,272. In both years, only approximately 40% of drivers used a single PTC platform, with the majority registered and offering trips on multiple platforms. To accurately calculate hourly earnings, overlapping time periods across platforms were therefore excluded.

Together, time spent either waiting upon arrival at the passenger's pick-up location or driving with a passenger in the vehicle accounted for roughly 65% of overall in-app time in 2023 and 58% in 2024. This is significant because these are the only periods during which drivers are compensated by PTCs; all other time spent logged into the apps (e.g., waiting for ride requests or driving to the passenger's pick-up location) is unpaid.

Per engaged hour of work, which includes all time from trip acceptance to passenger drop-off, the median driver earned $33.52 per hour in 2023 and $33.18 per hour in 2024. However, when considering all in-app time, including periods when drivers were waiting for a ride request, median earnings dropped to $25.23 per hour in 2023 and $22.46 per hour in 2024.

After factoring in driver expenses such as fuel, insurance, depreciation, maintenance, repairs, financing, and taxes, median earnings fell to $15.31 per engaged hour in 2023 and $15.35 in 2024. When accounting for all in-app time, net earnings decreased further, with the median driver earning $7.94 per in-app hour in 2023 and $5.97 per in-app hour in 2024.

When using the per engaged hour metric after expenses, 57-58% of drivers earn below the minimum wage of $16.55 per hour (which was the rate in effect during our study period in Ontario). The proportion of drivers earning below minimum wage rises to over 95% when considering net earnings on a per in-app hour basis. Furthermore, approximately 1% of drivers incur losses on a per engaged hour basis when accounting for expenses, a figure that increases to 14% in 2023 and 17% in 2024 when considering all in-app time.

PTC companies have already started transitioning to upfront pricing models in Toronto, which will make it impossible to estimate PTC driver earnings going forward using the methodology described in this report. Therefore, if any level of government intends to calculate PTC driver earnings in the future to undertake meaningful temporal comparisons, particularly when evaluating the effectiveness of policies aimed at ensuring fair compensation, access to actual wage data will be crucial.

Introduction

App-based transportation services originated in San Francisco with the introduction of UberCab in 2010 and Sidecar in 2011. The industry soon expanded to Canada, with Toronto serving as the initial entry point. Uber was the first ridehailing service to enter the Canadian market, launching in Toronto on March 4, 2012. Initially, it operated by dispatching taxicabs and limousine services to passengers but quickly sought to broaden the scope of its operations. By September 2014, Uber began offering rides through personal vehicles via its peer-to-peer ridehailing service, UberX, which rapidly became its most popular service. Uber was granted a Private Transportation Company (PTC)[1] licence on August 16, 2016, following Toronto City Council's approval of amendments to the city's Municipal Code Chapter 546 in May of that year, thereby effectively legalizing ridehailing in the city. Shortly thereafter, Uber's largest competitor, Lyft, entered the Toronto market on December 12, 2017, marking its first expansion outside the United States.

The city reviewed its bylaw in 2018-19 and 2021 to address key issues related to data privacy, traffic congestion, and accessibility. More recently, Toronto City Council directed its staff to conduct a review of the appropriate number of PTCs, taxicabs and limousines in the City, considering congestion, climate change, transit, and equity. As part of this work, City Council instructed staff to study driver wages. Commissioned in the summer of 2024, this report accordingly aims to analyze driver wages within the vehicle-for-hire industry.

Specifically, the objectives of this report are to:

- Understand the current state of wages and employment of drivers in the vehicle-for-hire industry in Toronto (with emphasis on the private transportation companies (i.e., Uber and Lyft)).
- Assess and quantify, where possible, the relationship between the utilization rate (i.e. the portion of each driver hour that includes a fare-paying passenger in the vehicle) and the private transportation companies' net driver earnings.

1. The term Private Transportation Company (PTC) will be used throughout the report to maintain consistency with other City of Toronto publications. However, it is important to note that many other jurisdictions and most academic literature refer to companies in this industry as "TNCs" (Transportation Network Companies).

Literature Review

A general overview of the current state of wages in the vehicle-for-hire sector

The success of app-based transportation companies, commonly referred to as private transportation companies (PTCs), hinges on their insight and ability to leverage smartphone technologies to handle trip requests and driver matching, provide real-time wait time information, and facilitate cashless transactions. A crucial component of their business model also relies on maintaining a large supply of drivers to minimize passenger wait times. Historically, the PTC industry has relied on a workforce of part-time drivers drawn by the prospect of supplementary income and the flexibility to choose their working hours. However, this reliance on a large pool of drivers has led some to argue that it may contribute to lowering drivers' wages (Reich and Parrott, 2020; Li et al., 2021). This is because time spent driving on PTC platforms does not necessarily equate to higher wages for drivers, as PTC platforms compensate drivers only for specific periods of time while on the apps. To accurately understand the current state of wages in the PTC sector, it is crucial to first clarify how "time spent driving" in this sector is defined.

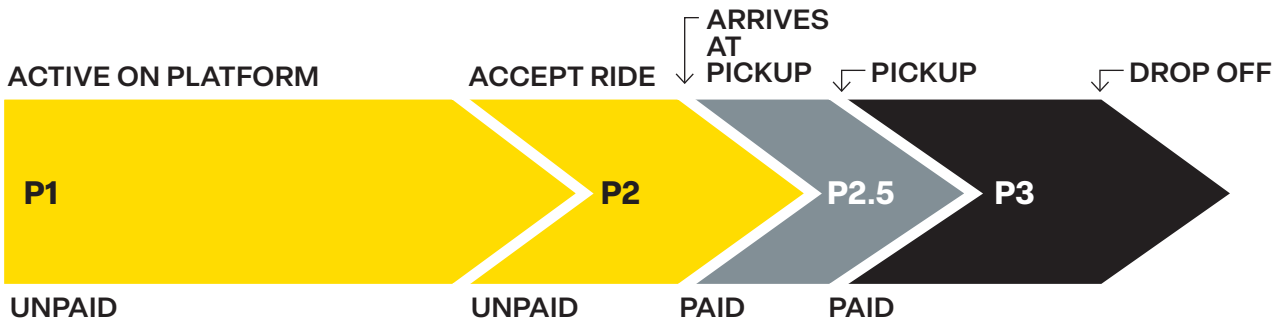
The work of PTC drivers can largely be described in three periods:

- **Period 1 (P1)**: The driver is logged into the app and waiting for a ride assignment.
- **Period 2 (P2)**: The driver is en route to pick up a passenger after accepting the ride.
- **Period 3 (P3)**: The driver has a passenger in the car.

Most PTC platforms compensate drivers only for the time when they have a passenger in the vehicle (P3). Kilometers traveled without passengers (P1 and P2), often referred to as "deadheading" kilometers, are not compensated.

A fourth period, sometimes referred to as Period 2.5 (P2.5), represents the time from when the driver arrives at the passenger's pick-up location until the passenger enters the vehicle. PTC platforms usually also compensate drivers for this period, but at a different rate than for P3.

Figure 1: Periods of time spent driving on platforms in the PTC sector



The work of taxi drivers closely mirrors that of PTC drivers and can similarly be divided into three categories when picking up passengers at a cabstand, though Period 2 is omitted when picking up passengers by street-hail. Taxi drivers are only compensated for time spent in Period 3.

Additional terms that will be used in this report include:

- **Deadheading:** Represents time on the app without a passenger in the car (P1 & P2)
- **Engaged time:** Represents all time from trip acceptance to passenger drop-off (P2 + P2.5 + P3). For simplicity and to better align with previous studies, we include P2.5 within P2, representing this time as (P2 + P3).
- **App time:** Represents all time spent on the app (P1 + P2 + P3)
- **Utilization rate:** Represents the portion of each driver hour that includes a fare-paying passenger in the vehicle (P3/(P1 + P2 + P3))
- **Engaged rate:** Represents the portion of each driver hour that is spent on a trip ((P2 + P3)/(P1 + P2 + P3))

Researchers examining wages in the PTC industry generally agree that companies such as Uber and Lyft provide low wages for drivers, especially after accounting for expenses (Zoepf et al. 2018; Mishel, 2018; Henao and Marshall, 2019; Ridefair, 2024). However, a challenge in comparing findings from studies on driver earnings in the PTC industry is the lack of consistency in measurement. For instance, some studies report earnings on an hourly basis, whereas others use distance thresholds, such as miles, to display driver earnings. Other inconsistencies arise from varying practices, including whether PTC commissions are factored into drivers' hourly pay, whether tips are included, whether earnings are presented before or after expenses, and how exactly these expenses are defined and accounted for. Table 1 summarizes findings from prior studies having examined the question of driver pay in the PTC industry and describes their definition of pay and describes their definition of pay. All earnings from U.S.-based studies were originally reported in USD. These values are included in italics in the table but were also converted to 2024 CAD by applying the exchange rate specific to the study's data collection period and adjusting for inflation using a CAD inflation calculator.

Table 1: Summary of previous studies having calculated PTC driver earnings per in-app time

Article	Location	Average in-app time earnings before expenses	Average in-app time earnings after expenses	Definition of pay
Hall and Krueger (2018)	Across U.S.	$31.40/h *$19.35/h in 2015 USD*	N/A	Earnings are net of Uber's fees but do not adjust for driver expenses
Cook et al. (2018)	Across U.S.	$33.84/h *$21.07/h in 2017 USD*	N/A	Earnings include Uber's commission fee and are not adjusted for driver expenses
Parrott and Reich (2018)	New York City	$39.34–44.56/h *$24.49–$27.74/h in 2017 USD*	$25.50/h *$15.88/h in 2017 USD*	Driving expenses calculated for 2018 Toyota Camry driven 35,000 miles per year
Zoepf et al. (2018)[2]	Across U.S.	$0.95/mile *$0.59/mile in 2017 USD*	$5.41/h *$3.37/h in 2017 USD*	Considered driving expenses: fuel, insurance, maintenance, repairs and depreciation. Average earnings are expressed as medians, not means.
Mishel (2018)	Across U.S.	$26.59/h *$16.55/h in 2017 USD*	$14.79/h *$9.21/h in 2017 USD*	Considered driving expenses: fuel, insurance, maintenance, repairs and depreciation. As well as driving costs, expenses include health, retirement and unemployment insurance.
Henao and Marshall (2019)	Denver	$25.79/h *$15.57/h in 2016 USD*	$13.50/h *$8.15/h in 2016 USD*	Three expense scenarios ranging from USD $0.28-$0.54/mile. As well as driving costs, miscellaneous cost included (car wash, mobile device and data fees, parking tickets, etc.). Tips are not included in driver earnings.
Reich and Parrott (2020)	Seattle	$33.83/h *$21.53/h in 2019 USD*	$18.54/h *$11.80/h in 2019 USD*	Considered driving expenses: fuel, insurance, maintenance, repairs and depreciation. As well as driving costs, expenses include provision for health insurance and independent contractor taxes.
Hyman et al. (2020)	Seattle	$39.68/h (median) *$25.82/h in 2019 USD*	$36.53/h (median) *$23.25/h in 2019 USD*	Considered driving expenses: fuel, maintenance and depreciation ($0.19/mile).
Manzo and Bruno (2021)	Chicago	$32.79/h *$ 20.78/h in 2020 USD*	$21.49 *$13.62/h in 2020 USD*	Considered driving expenses: fuel, maintenance, repair and depreciation (USD $0.53/mile).
Parrott and Reich (2024)	Minnesota	$41.60/h *$30.27/h in USD*	$19.90/h *$14.48/h in USD*	Driving expenses were estimated based on the IRS business mileage rates for 2022 (USD $0.59/mile).
Ridefair (2024)	Toronto	$20.01/h (median)	$6.37-10.60/h (median)	Estimated PTC driver earnings are per engaged hour, not in-app time. Driving expenses were estimated based on the 2023 CRA mileage rate allowance ($0.62/km).

2. The lead author of this study has since revised the earnings estimates in response to criticism from Uber's Chief Economist. While the revised study is still under review (Zoepf, 2018) initial assessments indicate that median driver earnings after expenses range between $13.80 and $16.14 per hour ($8.55-$10.00 per hour in 2017 USD).

As shown in Table 1, the estimated earnings of PTC drivers vary considerably depending on whether they are presented before or after driving expenses and which specific expenses are considered. Generally, pre-expense earnings fall within the $25-35 per hour spent on the apps, while post-expense earnings vary considerably. The variation in post-expense earnings is likely due to the different methods for calculating expenses. Few studies have direct information on the vehicles belonging to PTC drivers, so they often resort to using government mileage rate allowances (Henao and Marshall, 2019; Parrott and Reich, 2024; Ridefair, 2024) or estimating costs based on a typical PTC driver vehicle (Parrott and Reich, 2018; Reich and Parrott, 2020). However, estimates of driving expenses can vary significantly depending on the vehicle type. For example, Parrott and Reich (2018) report an hourly expense of USD $4.29 for small sedans compared to USD $6.46 for 4WD SUVs.

Moreover, the driving costs that researchers choose to consider also vary considerably. For instance, some studies include vehicle licensing and registration fees (Reich and Parrott, 2020) and insurance fees (Zoepf et al., 2018), whereas others exclude these costs, assuming drivers would own their cars and pay for these expenses even if they were not PTC drivers (Manzo and Bruno, 2021; Hyman et al., 2020; Hall and Krueger, 2018). Additionally, some studies account for miscellaneous costs such as car wash and cleaning, mobile device and data fees, parking and traffic violations, and the risk of crash and injury (Henao and Marshall, 2019), or include provisions for health insurance and independent contractor taxes (Mishel, 2019; Reich and Parrott, 2020). Even when studies have more precise vehicle information, it is often linked only to aggregate trip data. As a result, researchers must base driving expenses on predetermined annual distance thresholds such as 35,000 miles in the case of Reich and Parrott (2020) or 10,000 and 15,000 miles for Zoepf et al. (2018).

Another factor that may explain the observed variations in PTC driver earnings is that many drivers work on multiple apps simultaneously (i.e., they turn on both the Uber and Lyft apps and accept whichever trip comes first). For instance, in Toronto from January 2023 – April 2024 60% of drivers are found to operate on both apps. Most previous studies rely on aggregated statistics from PTCs, including the time spent in P1, which is subsequently used to calculate hourly earnings. However, for drivers using both apps, the P1 times may overlap. Since each platform does not know the usage patterns of drivers on other apps, the time reported in the aggregate dataset will likely include duplicates. Eliminating these duplicates is therefore crucial to achieve an accurate hourly earnings estimate. Some studies identify this issue and attempt to resolve it manually by reducing the trip times of multi-app drivers to better resemble that of single-app drivers (Reich and Parrott, 2020). To our knowledge, Parrott and Reich (2024) and Hyman et al. (2020) are the only two studies that have effectively eliminated such duplicate times across platforms. However, the former's earning calculations are based on 2022 IRS business mileage rates, and the latter's are based on aggregated week-level trip data for a single week in October 2019, making it challenging to calculate accurate driving expenses.

Finally, while the reported average earnings are informative, it is also important to consider variations among earnings and examine the proportion of drivers earning below minimum wage. Indeed, several studies report that a significant portion of PTC drivers do not earn minimum wage. In New York City, Parrott and Reich (2018) find that after accounting for expenses, 85% of app drivers are paid below USD $17.22 per hour, equivalent to the State's USD $15 per hour minimum wage in 2018 plus a paid time-off supplement of

USD $2.22 per hour. Similarly, Zoepf et al. (2018) find that 74% of drivers earn less than the minimum wage in the US. The average PTC driver is also found to earn below minimum wage in Chicago (Manzo and Bruno, 2021) and in the state of California (Reich, 2020). The proportion of drivers earning below minimum wage in Seattle appears to be contested as Reich and Parrott (2020) note that only reported driver earnings at the 90th percentile rise above Seattle's minimum wage, whereas Hyman et al. (2020) report—in a study funded by Uber and Lyft—that only 26% of full-time drivers earn below minimum wage. However, Hyman et al. (2020) only account for a portion of waiting time, as they exclude P1 times that do not result in a trip and estimate driver expenses at a mere USD $0.19 per mile. A recent report in Toronto further finds that the median hourly earnings for drivers is between 38.5% and 64% below minimum wage, and that drivers earning less than $15.69 per engaged hour (P2 + P3) before expenses may not even be breaking even (RideFair, 2024).[3]

For comparison, the Government of Canada reported a median wage of $17.50 per hour for taxi drivers in Ontario in 2023 (Government of Canada, 2024). Similarly, in the United States, the median wage for taxi drivers was $23.37 (USD $17.31) per hour in 2023 (US Bureau of Labor Statistics, 2024). That being said, the above reported median taxi wages do not include brokerage fees, which enable drivers to receive dispatched calls. These fees vary by brokerage company. For instance, Co-op Cabs in Toronto charges drivers $485 plus HST per vehicle per month in brokerage fees (Co-op Cabs, 2024), but the fees for most other taxicab brokerage companies were unavailable. It is worth noting that brokerage fees are flat rates that do not vary based on the number of dispatched calls received. Taxi drivers pay the same amount regardless of whether they receive dozens or hundreds of dispatched calls per month. The reported median taxi wage also does not account for rental fees. These fees apply only to drivers who lease their taxicabs from fleet operators, but we do not know which drivers lease their vehicles nor the rates charged by fleet operators.

The lack of information on rental and brokerage fees, and particularly how they have changed with the rise of PTCs, represents a gap in the literature and limits our ability to accurately portray taxi driver earnings in Toronto.

Economic and demographic factors influencing driver participation

This section discusses the demographic and labour supply characteristics of the PTC workforce. Initially, it was believed that the PTC workforce would mirror the demographic characteristics of the overall workforce (Hall and Krueger, 2018). However, several studies have since shown this not to be the case. In New York, Seattle, Minneapolis, and other major cities across the US, PTC drivers tend to be male, live in or near poverty, and to be immigrants (Parrott and Reich, 2018; Reich and Parrott, 2020; Cook et al., 2021, Parrott and Reich, 2024). These trends are even more pronounced when comparing part-time to full-time drivers, with full-time drivers (i.e. 35 hours per week or more) on average being older, more likely to be immigrants, and more likely to support at least one child (Waheed et al., 2018).

As mentioned earlier, ridehailing companies depend on having a large pool of available drivers to minimize passenger wait times. Historically, the PTC industry has relied on a

3. It is important to note that all studies mentioned in this paragraph report after-expense earnings. However, the costs classified as expenses and the methods used to measure them vary significantly. For further details, please refer to Table 1.

workforce of part-time drivers drawn by the prospect of supplementary income and the flexibility to choose their working hours. For example, a prominent study in 2018 found that only 13% of Uber drivers work 35 or more hours per week (Hall and Krueger, 2018), and data from Uber indicated that, on average, drivers across the U.S. work only 17 hours per week (Mishel, 2018). However, the PTC driver workforce appears to be evolving. Studies undertaken in the past five years in jurisdictions like Seattle and Minnesota found that most PTC drivers work 35 hours per week or more, which they define as full-time (Reich and Parrott, 2020; Parrott and Reich, 2024). Differences in available data sources may explain the variances in estimated driver working hours. Many drivers work on multiple platforms, so using data from a single platform to report working hours can underestimate total hours worked, potentially misclassifying full-time drivers as part-time.

Driving for a PTC company may indeed have become the primary means of earning a livelihood for a significant share of drivers, with up to 72% of full-time drivers reportedly relying on PTC driving as their sole source of income in cities like Seattle in 2020 (Reich and Parrott, 2020). This reliance can be further inferred from the duration many of them have been working in the industry. In Seattle, 55% of Uber drivers and 45% of Lyft drivers report having worked for the company for at least two years (Reich and Parrott, 2020). Similar findings were observed in Los Angeles, where the average tenure on the apps in 2018 was 13 months (Waheed et al., 2018). However, while some studies report long tenures, others emphasize high rates of driver attrition. For instance, Cook et al. (2021) found that in cities across the US 68.1% of drivers leave after six months. Similarly, Hall and Krueger (2018) found using administrative data from Uber that only 30% of drivers remained active after six months. These findings may seem contradictory at first, but together paint a fuller picture of the PTC industry, as employee turnover is emblematic of low-wage labor markets and those who depend on it as their sole source of income often cannot afford to give it up in search of better work.

One cannot discuss the economic factors influencing driver participation without examining the COVID-19 pandemic and its disruptive effect on the PTC industry. As governments across North America implemented restriction measures, PTCs experienced a significant decline in ridership, with companies such as Uber reporting a business drop of approximately 80% (Hawkins, 2020). In Toronto, a study by Loa et al. (2022) found that as of July 2020, roughly half of those who had previously used PTC services had not utilized this form of travel since the onset of the pandemic. This decline in ridership can be attributed not only to strict lockdown measures and the closure of restaurants and bars but also to other pandemic-related shifts, such as an increase in remote work and online shopping, which further reduced the demand for PTC services.

In addition to the decline in ridership, the pandemic also led to a significant reduction in the number of drivers willing to work, as many were reluctant to be confined in a vehicle with strangers due to the risk of contracting the virus. In early 2021, the number of Uber and Lyft drivers across the US fell to 40% below capacity, meaning longer wait-times for passengers (Bursztynsky, 2021). Even for those who continued driving, the lower demand led to a decrease in the share of driver hours with passengers in the vehicle and therefore the share of compensated driver hours by PTC platforms. In Chicago, total vehicle miles traveled with passengers by PTC drivers fell by 63% from September 2019 to September 2020 (Manzo and Bruno, 2021). The same study found that the average customer tip decreased by 39% during that time span, further highlighting the impact of the COVID-19 pandemic on PTC driver wages.

Most researchers to have examined this issue, project that the demand and supply for PTCs will return to pre-pandemic levels in short order (Koustas et al., 2020; Manzo and Bruno, 2021), and this trend has already begun in several major cities. For instance, in Toronto there were 191,000 daily trips in March 2024 compared to 176,000 daily trips in March 2019.

The impact of licensing policy on driver's wages and employment

While there are currently no cities that have a cap on PTC drivers, there are at least three municipalities, aside from Toronto, that have previously planned or enacted such a cap. The first is Kingston, Ontario, which introduced a cap on PTCs in 2018 as part of a bylaw to regulate the ridehailing industry. This cap, outlined in Bylaw 4, was initially adopted by the Kingston Area Taxi Commission. However, it was subsequently put on hold following a complaint filed with the Federal Competition Bureau, which questioned the commission's authority over ridehailing matters. This challenge arose after the Ontario Superior Court ruled in 2015 that Uber was not classified as a taxi broker. While the bylaw remains on permanent hold, it had proposed capping the number of ridehailing vehicles in the city at 150, with no more than 50 drivers allowed to be active on the platforms at any one time (Sherriff-Scott, 2018).

The second municipality to consider a cap on PTCs was New York City, which in August of 2018 became the first major North America city to approve legislation calling for a temporary one-year freeze on new for-hire vehicle licenses while they studied the impacts of this industry. This legislation also allowed the city to set a minimum pay rate for drivers to ensure they earn at least USD $17.22/hour, the equivalent to the State's USD $15/hour minimum wage after deducting a paid-time off supplement of USD $2.22/hour. In response to the cap and pay standard, which came into effect in February 2019, both Uber and Lyft announced that they would not accept new drivers. This led to more rides per hour for existing drivers and in turn to higher driver earnings, as PTCs typically compensate drivers only when passengers are in their vehicle. After implementing the licensing cap and minimum pay standard, drivers' wages were found to increase by 8%, while passenger wait times decreased by 18% and PTC commission rates fell by an average of 16.7%, indicating that the companies absorbed some of the increased costs (Manzo and Bruno, 2021; Koustas et al., 2020). PTC companies compete, in part, by minimizing passenger wait times, which may partially explain the reduction in wait times observed after the introduction of the licensing cap. It is worth highlighting that the implementation of the cap coincided with the introduction of a minimum pay standard, making it challenging to isolate the effects of each policy individually. Nevertheless, it is reasonable to conclude that, collectively, these measures had a positive impact on driver earnings.

New York's cap on PTC vehicles, initially intended to stabilize driver earnings and reduce traffic congestion, has since been lifted as part of the "Green Rides" policy enacted in October 2023. This policy allows for the issuance of new for-hire vehicle licenses for ridehailing purposes, provided the vehicles are zero-emission or wheelchair accessible (TLC, 2024a). However, the New York Taxi Workers Alliance has filed a lawsuit seeking to reinstate the cap on PTC vehicles, arguing that the Taxi and Limousine Commission (TLC) lacks the legal authority to unilaterally modify the licensing cap rules. In response, a Manhattan Supreme Court Justice has ordered a temporary halt to the issuance of new licenses while the lawsuit proceeds through the courts (Kuntzman, 2023).

Seattle is the third municipality to have contemplated a cap on PTC vehicle licenses.

In March 2014, the Seattle City Council passed an ordinance that would limit PTC operations in the city to 150 active drivers per platform at any given time—a significant decrease from the estimated 2,000 drivers operating in the city at that time (Reich and Parrott, 2020). However, following strong opposition and joint negotiation efforts from both Uber and Lyft, the city ultimately agreed to modify its original ordinance and allow app-based transportation companies to operate without limiting the number of drivers. While efforts to cap PTC drivers were subsequently abandoned, concerns over fair driver pay later led the city to pass minimum compensation requirements in 2021 as part of the Fair Share Wage Ordinance.

Other Canadian cities such as Saskatoon and Oakville, have acknowledge the possibility of establishing a cap on the number of PTC vehicles, citing that this would improve the parity between taxis and the PTC industry, but ultimately opposed such legislation as they found it would be contrary to the PTC business model, which promotes part-time and casual driving opportunities (Sum, 2021).

In Toronto, as in many major cities, there is a cap on the number of taxis. These regulations date back to the Great Depression, a period when high unemployment rates led to a surge in private vehicles being used as taxis. This overabundance of private vehicles operating as taxis caused significant traffic congestion, frequent disputes over passengers, and reduced driver wages, which in turn pushed regulators to limit their supply (Rahel, 2016; Toronto, 2012). As of June 2024, Toronto has 4,890 taxicab owners who either operate their own vehicles or lease them, with a total of 6,655 taxi drivers in the city (Toronto, 2024). With a city population of 3,024,647, this equates to approximately one taxicab for every 619 residents in Toronto. In comparison, New York City has around 13,500 taxicab medallions for a population of 8,804,190, translating to roughly one taxicab per 652 residents (TLC, 2024b). While more municipalities are contemplating restrictions on the number of PTC drivers, few have considered an open-entry market for taxis. Dublin, Ireland, is perhaps the most notable city to have removed such restrictions. When licensing regulations were lifted in November 2000, the number of licensed taxis increased significantly. However, demand did not rise correspondingly, leading to decreased profitability for drivers and additional pressure on service quality and fares (OECD, 2007). Following the 2008 recession, which led to decreased demand for taxis and subsequently lower driver wages, regulations on taxi market entry were reintroduced in Ireland in 2010.

However, with the rapid expansion of the PTC industry, an increasing number of lawmakers are considering deregulating the taxi industry to create a more level playing field between PTCs and traditional taxis. This includes Canada's Competition Bureau, which submitted a recommendation to the OECD advocating for the elimination of restrictions on the number of issued taxi plates (Canada, 2018). In the same OECD report, commissions and bureaus from other countries, including Finland, Spain and Bulgaria, recommended similar measures aimed at eliminating quotas on the maximum number of taxi licenses (OECD, 2018).

Existing policy options to increase PTC driver wages

Several policy solutions have been proposed to improve the wages of PTC drivers, most commonly involving a utilization rate target to ensure a minimum number of trips per driver hour or a minimum driver pay standard structured on a per-time and/or per-distance basis.

The most prominent case study is New York City, which implemented a minimum per-trip driver payment formula in December 2018 to guarantee earnings equivalent to the minimum wage. The adopted formula includes both distance and time components. The distance component is designed to cover all costs associated with acquiring, licensing, and operating a vehicle, while the time component compensates drivers at a rate of USD $17.22 per hour, equivalent to New York's USD $15 per hour minimum wage in 2018 plus a paid time-off supplement of USD $2.22 per hour. This additional supplement compensates drivers for the lack of paid time off, as they are classified as independent contractors rather than employees (TLC, 2018).

To address the issue that drivers are compensated only from the moment they arrive at the passenger's pick-up location until they drop them off at their destination (P2.5 & P3), rather than for their entire time on the app, the expense and time components of the driver pay standard formula are normalized by the PTC's utilization rate. This rate is defined as the portion of each driver hour that includes a fare-paying passenger in the vehicle. This approach ensures that PTCs cannot lower driver wages by reducing the time spent traveling with a passenger (P3), as might be possible under a fixed wage multiplier. Additionally, it incentivizes PTCs to increase the average number of trips per driver hour, thereby enhancing drivers' paid time (Parrott and Reich, 2018). It is important to note that this formula does not establish an hourly wage but sets a minimum per-trip payment standard to ensure drivers receive a minimum take-home pay after covering their expenses and accounting for their total working time, including time spent driving passengers as well as time waiting for a ride assignment and on route to pick up passengers. In addition to the two main components, New York City also approved a shared rides bonus to compensate drivers for the additional time required to pick up and drop off passengers during shared rides (e.g., UberX Share, formerly known as UberPOOL). The city established a higher per-minute rate for trips ending outside city boundaries to account for fareless return travels to the city and implemented a higher per-mile expense rate for wheelchair-accessible vehicles (WAVs) to cover the higher vehicle expenses incurred by these drivers. Using the distance rate (USD $1.314 per mile) and time rate (USD $0.564 per minute) applicable in March 2023, below is a sample calculation of the legislation adopted in New York City for a non-shared, non-WAV trip that is 5 miles and 20 minutes long at a utilization rate of 58%:

$$\frac{(\text{USD } \$1.314 \times 5 \textit{ miles}) + (\text{USD } \$0.564 \times 20 \textit{ minutes})}{0.58 \textit{ Utilization rate}} = \text{USD } \$30.78$$

Reich and Parrott (2020), who produced the report that led to the adoption of the minimum driver pay standard in New York, were also commissioned to study the economics of Seattle's vehicle-for-hire industry and made similar policy recommendations. Commonly referred to as the PTC Minimum Compensation Ordinance, Seattle's minimum compensation formula went into effect on January 1st, 2021. This ordinance required PTCs to pay drivers the greater of a per-mile rate of USD $1.33 and a per-minute rate of USD $0.57, or a minimum trip payment of USD $5.00, including for canceled trips (Seattle, 2024). As in New York, these rates were subsequently divided by the platform utilization rate to incentivize a higher rate of trips per driver hour. However, Seattle's ordinance separates the utilization rate into mileage and time components to better account for the specificities of trip distance and duration. This ordinance was subsequently replaced by the State of Washington's Minimum Wage Act, which on January 1st, 2024, required PTCs to pay drivers in Seattle the greater of a per-mile rate of USD $1.55 and a per-minute

rate of USD $0.66, or a minimum trip payment of USD $5.81 (Washington State, 2024). Minneapolis recently followed the examples set by Seattle, Washington, and New York by introducing legislation that mandates PTC platforms to pay drivers at least USD $1.40 per mile and USD $0.51 per minute for the time transporting passengers within the city limits, or USD $5.00, whichever is greater (Minneapolis, 2024).

PTCs have strongly resisted minimum driver pay standards, even going so far as to threaten ceasing operations in cities like Minneapolis (Valinsky, 2024). More recently, a PTC has also begun removing drivers from their platform during periods of low demand in New York City (Gorelick, 2024). This strategy aims to reduce deadheading, thereby increasing the company's utilization rate, which again is the portion of each driver hour that includes a fare-paying passenger in the vehicle. By increasing the utilization rate, which serves as the denominator in the driver pay standard formula, the PTC can reduce the amount it must pay its drivers through this minimum pay standard.

Another solution often favored by PTCs is to pay drivers an above-minimum wage rate based on engaged time, without normalizing by the utilization rate to compensate for deadheading. This approach is currently in place in the State of California, where PTCs collectively spent over USD $205 million in November 2020 to pass Proposition 22, allowing them to continue classifying their drivers as independent contractors rather than employees, as required under Assembly Bill 5. In exchange for being exempted from providing employee benefits such as overtime pay, bargaining rights, and sick leave, PTCs agreed to pay at least 120% of the prevailing minimum wage for drivers' engaged time. However, as pointed out by many critics, engaged time does not include time waiting for a ride assignment or en route to pick up passengers, and represents only 57.7% of drivers' overall working time in cities like Minneapolis (Parrot and Reich, 2024) and less than two-thirds of all drivers' work time in major cities across the US (Fehr and Peers, 2019). In 2022 Uber proposed a similar earnings standard in Ontario, committing to provide drivers at least 120% of the then prevailing $16.55 minimum wage during engaged time (P2 + P3) (Uber, 2022). Using recent estimates in Toronto, which find that drivers spend only 60% of their time engaged (Toronto, 2021), this equates to $11.92 per in-app hour before expenses.

Beyond establishing a minimum driver pay standard based on time spent on the app or during trips, another solution examined by Alnaggar et al. (2024) is to implement a utilization rate target. This target would ensure that drivers spend a predetermined portion of each working hour in engaged time, thus increasing the time spent earning money. When combined with other policy measures, such as the previously proposed pay of 120% above minimum wage for engaged time, this approach could lead to higher earnings for drivers. Alnaggar et al. (2024) compare the utilization rate target approach with other options, including an hourly minimum wage for all time spent on the app and only during engaged time. They find that only the utilization rate target and the hourly minimum wage for all time spent on the app significantly enhance drivers' average hourly pay, whereas the engaged time minimum wage guarantee does not lead to substantial improvements in driver earnings.

To summarize, while few municipalities have adopted policies to improve the wages of PTC drivers, those that have have typically implemented a minimum driver pay standard based on per-time and per-distance metrics. The key debate has centered around whether to compensate drivers only for periods of time spent engaged on trips or for all time spent logged onto the app. Normalizing trip-based payments by the PTCs' utilization rate has been the preferred method to account for drivers' non-engaged time,

ensuring that PTCs cannot lower driver wages by reducing the number of trips per driver hour. However, PTCs have argued that this method does not account for the fact that drivers often work on multiple apps simultaneously, potentially leading to dual earnings for P1 under this model. Moreover, these minimum driver pay standards may also have unintended consequences such as sometimes result in lower driver earnings. This appears to be the case in New York City, where some drivers say their wages have decreased by as much as 50%, as one PTC has responded to the minimum pay policy by restricting driver access to their platform during periods of low demand in an effort to boost their utilization rate (Gorelick, 2024).

Methodology

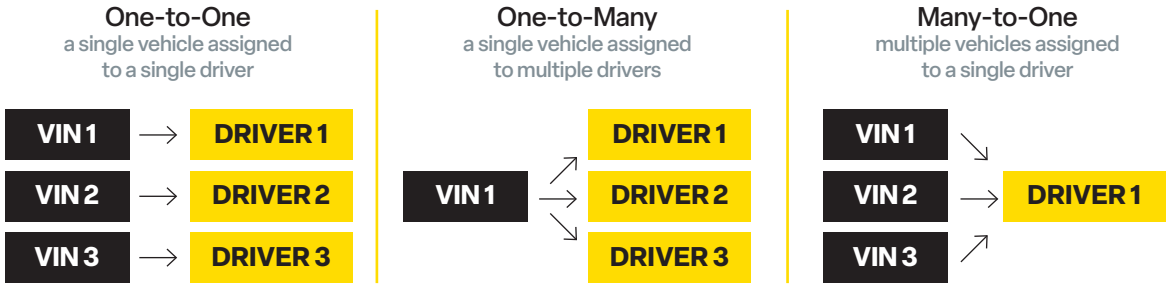
Before delving into the data sources and methods used to calculate vehicle-for-hire driver earnings in Toronto, it is important to note that, due to data limitations, we will not be reporting earnings estimates for taxi drivers. As mentioned in the literature review section, the absence of detailed data on hailed taxi trips – including the proportion of total taxi trips they represent – along with information on taxi rentals and brokerage fees, significantly limits our ability to accurately estimate taxi driver earnings in Toronto. Therefore, the remainder of the report will focus exclusively on PTC driver earnings.

Data sources

The data for this study is drawn from an 84-million record dataset of every PTC trip conducted in the city of Toronto between January 1st, 2023 and May 1st, 2024. Uber and Lyft, the only two ridehailing companies operating in Toronto during that period, provided the data as part of their compliance with the city's vehicle-for-hire bylaw (Toronto, 2022). The dataset includes details on the type of ridehailing trip (e.g. UberX, UberX Share, Lyft standard, Lyft LUX, etc.), trip fare, trip distance, trip duration, and the start-time and end-time as well as the location (to the closest intersection) for each of the three different PTC work periods.

In addition to the trip dataset, we also have information on the PTC vehicles themselves. This data was provided to Municipal Licensing and Standards Division as part of the requirements of the vehicle-for-hire bylaw, and includes the year, model, and make of all licensed PTC vehicles. Each driver is associated with one or more vehicle identification numbers (VIN), enabling the us to link the vehicle information to the trip dataset. Most vehicles are assigned to a single driver, yet vehicles can also be assigned to multiple drivers and multiple vehicles can be assigned to a single driver. Since it is not possible to determine which driver conducted a specific trip when multiple drivers are assigned to a single vehicle, these entries were excluded from the analysis. For this reason, we excluded 10.3% of all licensed PTC vehicles in our sample. Figure 2 outlines the possible assignments of licensed PTC vehicles to drivers. With the exception of some VINs having certain days of data removed – either due to no trips being conducted (i.e., only P1 periods) or due to unrealistic trips (e.g., disruptions in the cell phone signal leading to implausible P1 travel times) – all data was included in our analysis. Table 2 presents a detailed breakdown of the number of trips, drivers, and licensed PTC vehicles considered in this study.

Figure 2: Description of possible licensed PTC vehicles to driver combinations



As shown in Table 2, 61.6% of PTC drivers in 2024 are registered on both Uber and Lyft, meaning they may work on both apps simultaneously. To accurately calculate hourly earnings, it was essential to remove overlapping times across platforms. This task was managed by the City of Toronto Transportation Services Data and Analysis team, which extracted each distinct work period timestamp per VIN to identify overlaps. When overlaps were detected, they were resolved using the following logic hierarchy: P3 > P2.5 > P2 > P1. If overlaps occurred within the same work period on both platforms, only one was retained. The earnings analyses in this report incorporate these adjustments to eliminate overlapping time and kilometers driven.

Using the vehicle information, we obtained a customized dataset of driving and ownership expenses from Vincentric, a private automobile data compilation and analysis firm. The dataset includes costs related to depreciation, insurance, fuel, repairs, maintenance, financing, and registration and license plate fees and taxes. A detailed description of how these costs are calculated and account for is provided in Table 3. Expenses are calculated per vehicle year, make, and model for three predetermined annual distance thresholds: 5,000 km, 25,000 km, and 60,000 km. These thresholds were chosen to best reflect the driving patterns of PTC drivers in our sample and estimated driver costs are prorated to reflect their actual driving distance. Additionally, the expenses were calculated by assuming a driving pattern of 53% city driving and 47% highway driving, as determined by the median annual driving behaviors estimated from a subset of 6,630 drivers in our dataset.

4. While the PTC trip dataset includes all trips conducted within the City of Toronto, only those that originated in the City were retained for our analysis as these were matched with the vehicle information provided by the Municipal Licensing and Standards Division.

5. These entries were excluded from the analysis as it was impossible to identify the specific driver responsible for a trip when multiple drivers were assigned to the same vehicle.

Table 2: The number of trips, driver, and licensed PTC vehicles in Toronto

	2023	2024
Total number of trips	61,661,027	22,580,068
Average number of daily trips	168,879	186,666
Total number of drivers	68,231	57,541
Number of drivers using a single PTC platform	*28,412 (41.6%)*	*22,120 (38.4%)*
Number of drivers using both PTC platforms	*39,856 (58.4%)*	*35,449 (61.6%)*
Total number of licensed vehicles (VIN)	124,916	92,656
Total number of VIN undertaken at least 1 trip	101,524	73,734
Total number of VIN undertaken at least 1 trip matched w/ driver data[4]	82,797	62,736
One VIN associated with one driver	*53,709 (64.9%)*	*42,307 (67.4%)*
One VIN associated with multiple drivers[5]	*9,205 (11.1%)*	*6,528 (10.4%)*
Multiple VINs associated one driver	*19,883 (24.0%)*	*13,901 (22.2%)*

Table 3: Description of how driving and ownership expenses are calculated by Vincentric

EXPENSE	DESCRIPTION
Fuel	As the starting point for fuel cost calculations, we look at the annual distance driven and use the percentage of 53% city/47% highway driving to determine the total city distance driven and the total highway distance driven. We use our access to national government databases (Natural Resources Canada) fuel economy estimates for both highway and city driving to determine the total quantity of fuel used.
Insurance	Using data from multiple insurance industry sources, we estimate insurance costs for all vehicles in the Vincentric databases. Canada averages are used to determine national insurance costs. Insurance costs are included in our driving expense calculations because many automobile insurance companies raise their rates when drivers report using their vehicles for commercial purposes, such as PTC work. Additionally, PTC companies provide full insurance coverage only when drivers are engaged in a trip (P2 & P3), but offer reduced coverage while drivers are waiting for a trip request (P1).
Depreciation	The vehicle purchase cost was excluded from our driver expense calculation, as we consider it as an asset owned by the driver, which can be sold. However, we include the vehicle's depreciation as an expense, as it is directly affected by the kilometers driven for ridehailing purposes. Depreciation reflects the gradual reduction in the vehicle's value over time, which is accelerated by its use in this context. Vincentric estimates the annual depreciation on each vehicle by identifying the difference between current market price and the forecasted residual values of the vehicle. The Vincentric default residual values are provided by our data partner Canadian Black Book, a well-respected information provider in the automotive industry.
Maintenance	Maintenance costs are impacted by four key elements: frequency, labor rates, labor times, and parts prices. Maintenance costs are based upon the manufacturer's recommended maintenance schedules, with unscheduled maintenance items such as tires and batteries added to determine overall maintenance cost. Any free maintenance plans offered by the manufacturer are included. Using data from MOTOR Information Systems and other industry sources, we calculate both scheduled and unscheduled maintenance costs. When measuring lifecycle costs at the province level, labor rates are adjusted to account for the variance in each of these geographic segments.
Repair	Repair costs are estimated based upon the price paid to keep a vehicle in operating condition (not including scheduled and unscheduled maintenance costs). Calculations use the cost of a $0 deductible extended service contract and account for variances in cost by province. Bumper-to-bumper warranties offered by the manufacturer are included. This approach is the industry standard and provides an accurate way of fairly comparing vehicles across brands and size classes.
Financing	Financing is the amount it costs to borrow money for a vehicle purchase. Using financial data provided by the banking industry, we calculate this "cost of money" to help determine overall lifecycle costs. Financing costs differ by province.
Fees & Taxes	Fees and taxes include sales tax for the initial vehicle purchase, registration fees, and license plate fees. Local taxes are factored into calculations as a province-wide average in Canada. In Canada, national and all provincial-level electric vehicle tax credits are applied as a discount to the vehicle's market price. These administrative fees are often overlooked but can significantly impact the cost of owning a vehicle.

Calculating gross PTC driver earnings in Toronto

In Toronto, ridehailing fares vary both between and within platforms, depending on the selected type of service (e.g., UberX, UberX Share, Lyft Standard, Lyft LUX, etc.). Typically, fares consist of a base fare, charges per minute and per kilometer traveled, a booking fee, various additional fees, and the Harmonized Sales Tax (HST). We begin with Uber, as we have access to more detailed information regarding driver earnings for this company (see Table 4). Specifically, a comprehensive breakdown of the driver earning rate cards for Uber services in January 2024 was submitted to the City of Toronto as part of the written submission for item EX12.1 of the Executive Committee Meeting 12 agenda (RDAO, 2024).

Table 4: Uber's driver earning rate card for its different services as of January 2024

	UberX, Green	Assist	WAV	UberXL	UberX Share	Comfort	Comfort Electric	Premier	Premier SUV	Black	Black SUV
Base Fare	$3.17	$3.09	$3	$5.67	N/A	$4.44	$4.44	$7.69	$9.94	$12.42	$20.44
Per Minute	$0.18	$0.18	$0.18	$0.35	N/A	$0.26	$0.25	$0.50	$0.63	$0.85	$0.89
Per Kilometer	$0.81	$0.81	$0.81	$1.55	N/A	$0.93	$1.13	$1.78	$2.11	$2.23	$2.29
Minimum Charge*	$5.25	$5.25	$5.25	$8	$5.50	$11.72	$12.62	$15	$25	$15.75	$25.75
Cancellation Fee	$6	$6	$6	$6	$3	$6	$6	$10	10	$10	$10
Rider No Show Fee	$6	$6	$6	$6	$5	$10	$10	$20	$25	$20	$25
Additional Rider Fee	N/A	N/A	N/A	N/A	$1	N/A	N/A	N/A	N/A	N/A	N/A
Wait Time/Minute	$0.35 *(+Surge)*	$0.00	$0.00	$0.40 *(+Surge)*	$0.40 *(+Surge)*	$0.60	$0.60	$1.06	$1.34	$0.85	$0.89

** includes booking fee*

Although booking fees are listed on the rate card as part of the minimum charge, they are collected from passengers and subsequently remitted to Uber, hence they do not contribute to driver earnings. Booking fees typically range from $1.60 to $3.85, depending on the trip type and distance. Table 5 details the service fees that drivers are required to pay to Uber for the company's services. Services fees are based on the region where the trip starts and were adjusted slightly depending on when the drivers first activated their account. Based on the rate card, Uber drivers earn the passenger fare minus the service fees and HST.

Table 5: Service and booking fees for Uber as of January 2024

	UberX, Green	UberXL	WAV	Assist	Comfort + Electric	Premier	Premier SUV
Toronto	20%	28%	0%	15%	28%	28%	28%
(for Driver Accounts first activated on or before Aug 14, 2015)							
Toronto	25%	28%	0%	15%	28%	28%	28%
(for Driver Accounts first activated after Aug 14, 2015)							

For every trip completed using a low-emissions or zero-emissions vehicles (i.e. Uber Green), the passenger is charged an addition $1.00, of which $0.50 is returned to Uber and $0.50 is added to the driver's earnings for that trip. There is also an out-of-region surcharge ($0.35 per kilometer for the entire trip) that is levied on trips starting inside and ending outside the Toronto operating region. This region includes the Cities of Toronto and Kawartha Lakes, Halton and Peel Regions, Grey, Dufferin, and Simcoe Counties, and York and Durham Regional Municipalities (excluding trips commencing at Toronto Pearson International Airport)[6]. In our sample, this surcharge was applied to 87,003 trips, representing 0.1% of all trips. This is to account for the time required for drivers to return to the operating region. The City of Toronto also charges "TNC/City Fees Recovery Surcharges" ($0.34) per trip and "Accessibility Fees Recovery Surcharges" ($0.10) per trip, which appear in the passenger fare, but are not part of the drivers' earnings.

The service fee for UberX Share (formerly known as UberPOOL) trips differs slightly, depending on whether the trips are successfully matched with other passengers or not. For unmatched trips, Uber adjusts its service fee to ensure that the net fare is equivalent to that of an UberX trip. Consequently, we apply the same earnings formula for unmatched UberX Share trips as we do for UberX trips. For matched trips, we estimate the total trip duration and distance using the pick-up time of the first passenger and the drop-off time of the last passenger. We then apply the same earnings formula and service fees as those used for UberX trips.

Additional elements of Uber drivers' earnings that are not included in our data are whether the trip was conducted using a pet-friendly vehicle (i.e., Uber Pet), which incurs an additional $5 charge to the passenger's fare, and whether the trip was booked in advance (i.e., Uber Reserve), which incurs additional reservation fees. Both are components of the fare and are subject to the usual service fees.

Our data also does not include tips nor surge pricing, which acts as a fare multiplier during peak demand periods. To address this, we incorporate tip estimates from previous studies (Parrott and Reich, 2018; Manzo and Bruno, 2021), and assume that drivers receive an average of $0.80 per trip in tips. This amount was added to the Uber driver earnings calculation. For surge pricing, we determined the expected passenger fare-to-driver earnings ratio using the Uber rate card (i.e., 40-60% before tips) and compared it to the actual fare paid in the trip dataset to identify all trips with a ratio below the lower threshold of 40% as being subject to surge pricing. We then adjusted the earnings for these trips to reflect the average fare-to-earnings ratio (i.e., 50% before tips), ensuring a more accurate representation of the typical fare-to-earnings relationship. For instance, if the trip data shows that a passenger paid $25 for a trip, but based on the PTC rate card, we calculate that the fare for this trip should have been $7.50, this results in a fare-to-earnings ratio of 0.3 ($7.50/$25). This hypothetical trip would therefore be flagged, as its ratio falls below 40%, indicating that it likely occurred during a period of surge pricing. Our methodology would then adjust the earnings calculation to reflect the typical fare-to-earnings ratio of 50%, resulting in adjusted earnings of $12.50 (before tips) instead of the initial $7.50.

Now turning to Lyft, we obtained fare card data directly from a driver but only for Lyft's Standard services, which account for the large majority of all Lyft trips in our sample.

6. Since our analysis only includes trips that begin within the City of Toronto boundaries, there is no need to account for the varying fees associated with trips originating from Toronto Pearson International Airport.

Consequently, we must exclude all non-Standard Lyft trips from the analysis. Lyft's fare cards are also differentiated based on whether the driver has activated Lyft's "Priority Mode." This option, available only to drivers with high driving scores, offers more ride requests with reduced waiting times but results in lower earnings. However, our dataset does not indicate whether drivers have activated Priority Mode. Therefore, earnings will be calculated under the assumptions that Priority Mode is disabled for all trips, as it is not available to all drivers. The $0.80 per trip in tips assumed for Uber trips was also added to the Lyft driver earnings calculations, and the same earnings-to-passenger fare ratio was used to identify surge pricing and adjust driver earnings accordingly. Table 6 shows the Lyft fare card for Standard driving with Priority Mode disabled, with service fess already factored in.

Table 6: Lyft fare card for Lyft standard driving with Priority mode disabled in effect during our study period

CHARGES	COST
Base Charge	$2.43
Per Kilometer	$0.61
Per Minute	$0.14
Minimum Rate	$1.87
Maximum Rate	$300
Cancel Minimum	$2
Cancel Maximum	$15
Scheduled Cancel Minimum	$5
Scheduled Cancel Maximum	$15

While both Uber and Lyft are currently transitioning from traditional earning rate cards to upfront pricing, driver earnings in 2023 and the first quarter of 2024 were still primarily determined by the base fare and charges per minute and per kilometer driven. Upfront pricing allows passengers to see the total cost of their trip before agreeing to it, meaning fares are no longer a function of the actual trip duration. Although upfront pricing enables drivers to know their earnings and destination before accepting a trip, it also incorporates several real-time factors into the earnings calculation, such as current demand at the driver's location and forecasted demand at the passenger's destination (Chaum, 2023). This, in turn, makes it more challenging for drivers to understand the precise factors influencing their earnings.

Calculating net PTC driver earnings in Toronto

After calculating driver earnings using the aforementioned methodology, we then subtract their associated costs. These costs are determined using the vehicle's year, model, and make and are provided by Vincentric on an annual basis for the next five years (2024-2029). Fixed expenses include insurance, financing, and fees & taxes. These are proportionally allocated based on the assumption that PTC drivers also use their vehicles for personal purposes. We assume that PTC drivers use their vehicles for personal reasons at a rate of 20,000 kilometers annually, as per the annual kilometers driven assumption used by Natural Resources Canada (Natural Resources Canada, 2023), and attribute fixed expenses based on the fraction of total annual kilometers driven for PTC

work. Variable expenses, including depreciation, fuel, repairs, and maintenance, are calculated based on the driver's annual kilometers driven while working on a PTC platform. A more detailed description of how expenses were calculated and accounted for in our net earnings calculations can be found in the technical appendix attached to this report.

The 2024 annual fuel and insurance expenses were used in our analysis. However, since we only have information on the vehicle's year, model, and make, and not the exact purchase date, we chose to use the average annual expense from 2024-2029 for maintenance and repair costs, rather than relying solely on the 2024 expense. Additionally, as some costs fluctuate based on the vehicle's purchase year – and our dataset assumes all vehicles were purchased in 2024 – we used the average annual expense from 2024-2029 for 2018 vehicle models or later, and the average annual expense from 2025-2029 for older vehicles. This approach was applied to the following expenses: depreciation, financing, taxes & fees. The biggest implication of this decision is that the first-year depreciation and sales-tax is smoothed and apportioned more accurately to reflect an amortized expense over a 4 or 5-year period.

Net earnings are calculated for both drivers' engaged time (P2 + P3) and in-app time (P1 + P2 + P3). It is important to note that our analysis focuses on pre-tax earnings, as accounting for how individual drivers may deduct their PTC vehicle expenses presents significant challenges and falls beyond the scope of this report. Furthermore, we exclude the vehicle purchase cost from our driver expense calculations, since we view it as an asset owned by the driver, which may in turn be sold. However, we account for the vehicle's depreciation as an expense, since it is directly affected by the kilometers driven for ridehailing purposes. Indeed, depreciation represents the gradual reduction in the vehicle's value over time, accelerated by its use in this context.

Given that we have more precise data for Uber than for Lyft, as we do not know whether the "Priority mode" is enabled for Lyft trips, we present net driver earnings using two distinct calculation methods:

1. We report earnings for all drivers, using the platforms' respective driver earnings rate card and associated fixed and variable costs.
2. We report earnings for Uber trips by applying the methodology described in the first calculation method and apply the average driver earnings-to-passenger fare ratio estimated for UberX trips to all Lyft Standard trips.

Our aim is that by utilizing two distinct net earnings calculation methods, we can more accurately approximate the actual earnings of PTC drivers. For each of the above earning calculations, we will also present the proportion of drivers earning below the Province of Ontario's minimum wage of $16.55[7] per hour of engaged and in-app time to help assess whether the PTC sector provides drivers with sufficient wages after accounting for expenses.

After calculating PTC net driver earnings, we estimated their utilization rate, calculated as (P3/(P1 + P2 + P3)). Once the utilization rate is determined, we will examine the relationship between drivers' net earnings and their utilization rate, using a boxplot chart to illustrate the utilization rates associated with different levels of hourly earnings. Understanding the proportion of each working hour that must be spent engaged in trips to achieve a certain earnings threshold would enable policies that set utilization rate targets. Such targets have been shown to enhance drivers' average hourly pay (Alnaggar et al., 2024).

7. The Province of Ontario has since increased its minimum wage to $17.20 per hour, but we use the previous $16.55 per hour minimum wage value, as this was the rate in effect during the timeframe of our study.

Results

Results

Descriptive analysis

Table 7 provides a descriptive summary of PTC trips undertaken in Toronto between January 1, 2023, and April 30, 2024. During this period, PTC drivers completed a median of approximately 6 trips per working day. A significant level of driver attrition is also evident, with only 12.7% of drivers having data across all 16 months of the study, and just 48.3% of drivers undertaking trips in at least half of the months.

The median annual distance traveled per PTC driver is 4,296 km in 2023, which, when multiplied by the total number of licensed PTC drivers, results in a total industry distance of over 284 million kilometers annually in Toronto. It is also worth noting that the annual distance traveled per vehicle is higher in 2023 than in 2024, as data for the latter year only covers one-third of the year (January 1st – April 30th).

Drivers spend approximately one-quarter to one-third of their in-app time waiting for a trip request (P1), and approximately 10% of their time en route to the passenger's pick-up location or waiting for the passenger to board the vehicle (P2 & P2.5). The proportion of time spent on trips with a passenger in the vehicle (P3), often referred to as the utilization rate, fluctuates from 61.4% in 2023 to 54.4% in 2024. This is notable, as P3 is the primary portion of in-app time for which drivers are compensated, and it appears to have decreased by 7% from 2023 to 2024. The majority of the distance traveled by PTC drivers also occurs while passengers are onboard (P3).

Gross earnings analysis

Now turning to earnings, Table 8 presents the gross PTC driver earnings in Toronto between January 1, 2023, and April 30, 2024. Per engaged hour (P2 + P3), we find that the median driver earns $33.52 per hour in 2023 and $33.18 per hour in 2024. When accounting for all in-app time, including periods when drivers are waiting for ride assignments (P1), the median earnings drop to $25.23 per in-app hour in 2023 and $22.46 in 2024. The interquartile range (i.e., the range between the 25th and 75th percentile values) further highlights the substantial variation in gross driver earnings within the PTC industry.

Cost analysis

Driving expenses are grouped into fixed and variable costs and presented on a per hour basis. Table 9 displays the fixed costs per hour for PTC drivers in Toronto from January 1, 2023, to April 30, 2024. When accounting for insurance, financing, and fees & taxes, the median overall fixed cost is just under $3 per hour, with insurance costs comprising roughly half of this amount. Additionally, we provide the median fixed costs for the most commonly used PTC vehicle in Toronto during this period, the 2022 Honda Civic, which amounts to $3.41 per hour (see Table 11).

Table 7: A descriptive summary of PTC trip in Toronto	2023	2024
Total number of drivers[8]	**66,191**	**53,273**
Average trips per day	6.3	6.6
Median trips per day	5.7	6.0
Average trips per month	83.1	96.9
Median trips per month	45.2	55.0
Proportion of drivers with trip data across specified months		
Proportion of drivers with trips in at least 4 months	71.9%	
Proportion of drivers with trips in at least 8 months	48.3%	
Proportion of drivers with trips in at least 12 months	30.2%	
Proportion of drivers with trips in all 16 months	12.7%	
Annual distance driven per driver (km)		
Minimum annual distance traveled	0.9	0.7
Quartile 1 (25th percentile)	823.9	596.1
Median	4,296.2	2,720.8
Mean	10,508.5	5,184.4
Quartile 3 (75th percentile)	14,857.7	7,900.1
Maximum annual distance traveled	115,621.9	49,317.4
Proportion of in-app time spent in different periods		
Proportion of in-app time spent in P1	25.8%	34.5%
Proportion of in-app time spent in P2	9.2%	7.9%
Proportion of in-app time spent in P2.5	3.6%	3.2%
Proportion of in-app time spent in P3 (Utilization rate)	61.4%	54.4%
Proportion of in-app deadheading time (P1+P2)	35.0%	42.4%
Proportion of in-app engaged time (P2 + P3)	74.2%	65.5%
Proportion of in-app distance spent in different periods		
Proportion of in-app distance spent in P1	20.5%	27.7%
Proportion of in-app distance spent in P2	7.1%	6.3%
Proportion of in-app distance spent in P3	72.4%	66.0%
Proportion of in-app deadheading distance (P1+P2)	27.6%	34.0%

As noted earlier in the report, engaged time technically includes all time from trip acceptance to passenger drop-off (P2 + P2.5 + P3). For simplicity and to better align with previous studies, we include P2.5 within P2 and represent it as (P2 + P3).

8. We excluded a driver's travel records for any day in which they exhibited unusually long distances traveled within a short period, likely due to GPS or routing errors. Additionally, we removed travel records for drivers who activated the app but did not complete any trips on that day, to exclude those who were not actively seeking passengers.

Table 8: Gross PTC driver earnings in Toronto		2023		2024	
Number of drivers		**n = 66,191**		**n = 53,273**	
		Per engaged hr (P2 + P3)	**Per in-app hr (P1 + P2 + P3)**	**Per engaged hr (P2 + P3)**	**Per in-app hr (P1 + P2 + P3)**
Gross hourly earnings ($)	Mean	34.90	25.11	34.73	22.58
	Quartile 1 *(25th percentile)*	31.11	22.72	30.70	19.97
	Median *(50th percentile)*	33.52	25.23	33.18	22.46
	Quartile 3 *(75th percentile)*	36.97	27.58	36.76	24.88

Table 9: Per hour fixed costs for PTC drivers in Toronto	FIXED COSTS ($)		
	Insurance	**Financing**	**Fees & Taxes**
Mean	1.55	0.86	0.72
Quartile 1 *(25th percentile)*	1.02	0.47	0.33
Median *(50th percentile)*	1.46	0.74	0.67
Quartile 3 *(75th percentile)*	1.96	1.11	1.03
Median fixed cost for the most commonly used PTC vehicle in our dataset *(Honda Civic 2022)*	1.56	0.96	0.89

Results

Table 10 presents the variable costs per hour for PTC drivers in Toronto between January 1, 2023, and April 30, 2024. Variable costs represent a significantly larger portion of overall driver expenses. When factoring in fuel, repairs, maintenance, and depreciation, the median variable cost amounts to over $13 per hour, with fuel and maintenance accounting for the largest share. Again, we provide the median variable costs for the most commonly used PTC vehicle in Toronto during this period, the 2022 Honda Civic, which total $14.70 per hour (see Table 11).

Table 10: Per hour variable costs for PTC drivers in Toronto

	VARIABLE COSTS ($)			
	Fuel	**Repairs**	**Maintenance**	**Depreciations**
Mean	4.08	2.55	4.43	3.34
Quartile 1 *(25th percentile)*	3.35	1.55	2.97	1.80
Median *(50th percentile)*	3.96	2.34	3.86	2.94
Quartile 3 *(75th percentile)*	4.72	3.31	5.38	4.42
Median fixed cost for the most commonly used PTC vehicle in our dataset *(Honda Civic 2022)*	3.64	3.00	4.26	4.02

In Table 11, we present the overall fixed and variable costs associated with PTC work in Toronto between January 1, 2023, and April 30, 2024, displayed in both a per hour and per kilometer basis. When accounting for both fixed and variable expenses, the median total cost amounts to $16.31 per hour or $0.56 per kilometer driven. Notably, variable expenses comprise over three-quarters of the total costs associated with PTC work. Additionally, the wide interquartile range highlights the significant variability in overall driving expenses among PTC drivers and suggests that certain vehicles, such as electric vehicles, may allow drivers to significantly reduce their expenses.

Table 11: Overall costs for PTC drivers in Toronto on a per hour and per kilometer basis

	FIXED ($)		VARIABLE ($)	
	Per hour	**Per km**	**Per hour**	**Per km**
Mean	3.15	0.10	14.47	0.48
Quartile 1 *(25th percentile)*	1.98	0.07	10.81	0.39
Median *(50th percentile)*	2.87	0.10	13.44	0.46
Quartile 3 *(75th percentile)*	3.99	0.13	17.04	0.55
Median fixed cost for the most commonly used PTC vehicle in our dataset *(Honda Civic 2022)*	3.41	0.12	14.70	0.52
Number of drivers	***n = 75,208***			

Net earnings analysis

Net earnings are calculated for both drivers' in-app time (P1 + P2 + P3) and engaged time (P2 + P3). We report earnings for all drivers using two distinct methods. The first approach calculates net earnings by subtracting all associated fixed and variable costs from the gross earnings analysis established using the PTC platform's respective driver earning rate card (see Table 12). The second approach estimates earnings by applying the methodology described in the first approach to all Uber trips and using the average driver earnings-to-passenger fare ratio, derived from UberX trips, to estimate earnings for Lyft Standard trips. thereby providing an estimate for all PTC drivers (see Table 13). It is important to note that our data for Uber trips is more accurate than for Lyft trips, as we lack information on whether "priority mode" is enabled for Lyft trips. Therefore, we assume this feature is disabled for all trips, as it is not available to all drivers. Nonetheless, by using these two distinct net earnings calculation methods we aim to more accurately approximate the actual earnings of PTC drivers through triangulation.

By subtracting the estimated fixed and variable costs from drivers' gross earnings, we find that the median PTC driver in Toronto earns $15.31 per engaged hour in 2023 and $15.35 in 2024 – both of which fall below the minimum wage rate of $16.55 per hour that was in effect in Ontario during our study period. These earnings are even lower when accounting for all in-app time, including periods spent waiting for trip requests (P1). Specifically, the median driver earns $7.94 per in-app hour in 2023 and $5.97 per in-app hour in 2024. The lower in-app hourly earnings observed in 2024 are likely due to a decreased utilization rate that year (see Table 7). In other words, the median driver spent more time driving without a passenger in their vehicle in 2024, resulting in lower earnings for the same amount of effort compared to 2023.

Furthermore, as shown in Table 12, more than half of all PTC drivers earn below minimum wage per engaged hour, with 57.4% earning less than $16.55 per engaged hour in 2023, and 58.2% in 2024. The proportion of drivers earning below minimum wage increases sharply when considering earnings on a per in-app hour basis, with over 95% of drivers falling below the minimum wage threshold in both 2023 and 2024.

Table 12: Net PTC driver earnings in Toronto using the PTC platforms' respective driver earning rate card (Method 1)

		2023		2024 (Jan. 1-Apr. 30)	
		Per engaged hour *(P2 + P3)*	**Per in-app hour** *(P1 + P2 + P3)*	**Per engaged hour** *(P2 + P3)*	**Per in-app hour** *(P1 + P2 + P3)*
NET HOURLY EARNINGS ($)	Mean	15.47	7.15	15.66	5.30
	Quartile 1 *(25th percentile)*	11.16	3.17	11.79	1.84
	Median *(50th percentile)*	15.31	7.94	15.35	5.97
	Quartile 3 *(75th percentile)*	19.31	12.09	19.03	9.56
Percentage of PTC drivers earning below minimum wage ($16.55/hr)		57.4%	95.8%	58.2%	98.8%
Percentage of PTC drivers losing money (gross earnings < expenses)		1.2%	14.0%	0.9%	17.4%
Number of drivers		***n= 66,191***		***n=53,273***	

By comparing the gross earnings and associated driving expenses of all drivers in the sample, we find that approximately 1% of drivers actually operate at a loss (i.e., gross earnings < expenses) when driving for PTC platforms. This proportion rises to 14-17% when considering the entire in-app time period.

Using the average driver earning-to-passenger fare ratio approach, we observe similar results. The median PTC driver in Toronto earns $14.61 per engaged hour in 2023 and $14.29 in 2024, slightly lower than the earnings established through the previous methodology. As expected, these earnings decrease when considering the entire time drivers are logged into PTC platforms, with median earnings per in-app hour dropping to $7.35 in 2023 and $5.19 in 2024.

With this net earnings method, over 60% of drivers earn below the minimum wage of $16.55 per hour, which was in effect during our study period in Ontario, and this figure rises again to over 95% in both 2023 and 2024 when accounting for all in-app time. Additionally, this methodology reveals a slightly higher percentage of drivers who incur a loss by working for PTC platforms. In 2023, 1.7% of drivers earn less than their fixed and variable driving expenses per engaged hour, with 16.6% doing so per in-app hour in 2023 and 22.2% in 2024.

Table 13: Net PTC driver earnings in Toronto using the average driver earnings-to-passenger fare ratio, derived from UberX trips, to estimate earnings for Lyft Standard trips (Method 2)

	2023		2024 (Jan. 1-Apr. 30)		
	Per engaged hour *(P2 + P3)*	Per in-app hour *(P1 + P2 + P3)*	Per engaged hour *(P2 + P3)*	Per in-app hour *(P1 + P2 + P3)*	
Mean	14.73	6.61	14.44	4.53	NET HOURLY EARNINGS ($)
Quartile 1 *(25th percentile)*	10.30	2.36	10.30	0.69	
Median *(50th percentile)*	14.61	7.35	14.29	5.19	
Quartile 3 *(75th percentile)*	18.88	11.75	18.25	9.06	
Percentage of PTC drivers earning below minimum wage ($16.55/hr)	61.2%	96.0%	64.2%	98.8%	
Percentage of PTC drivers losing money (gross earnings < expenses)	1.7%	16.6%	1.7%	22.2%	
Number of drivers	***n= 66,191***		***n=53,273***		

Our results generally show lower PTC driver earnings compared to recent estimates from other jurisdictions, such as Minnesota, where after adjusting for inflation and converting to CAD, Parrott and Reich (2024) found the average PTC driver earns $19.90 per in-app hour, or Chicago, where Manzo and Bruno (2021) concluded that the average PTC earnings per in-app hour were $21.49. We believe this discrepancy is largely due to our ability to more accurately account for driver expenses, as we have access to detailed information on the year, model, and make of PTC vehicles, which in turn allowed for a more precise calculation of fixed and variable expenses. Few studies have direct access to this type of data, and many in the past have instead relied on government mileage rate allowances (Henao and Marshall, 2019; Parrott and Reich, 2024; Ridefair, 2024) or cost estimates based on typical PTC vehicles (Parrott and Reich, 2018; Reich and Parrott, 2020). However, as shown in Table 11, the difference between the median driver expenses and those of the 2022 Honda Civic highlights how vehicle-specific costs can vary significantly. Even studies with more precise vehicle informa-

tion have only been able to link it to aggregate trip data, without having access to the exact distance traveled per driver for PTC purposes (Reich and Parrott, 2020; Zoepf et al., 2018).

Another factor contributing to the divergence in results is the scope of expenses we include. Studies that also account for miscellaneous costs, such as car washes and cleaning, mobile device and data fees, parking and traffic violations, and the risk of crash and injury, typically report lower hourly earnings than ours (e.g., $13.50/hour in Henao and Marshall (2019)). In contrast, studies that exclude expenses like vehicle licensing and registration fees tend to report higher earnings. Notably, studies like Manzo and Bruno (2020), which exclude all fixed costs, or Hyman et al. (2020), which also exclude fixed costs and apply a widely criticized low variable cost rate, tend to overestimate driver earnings.

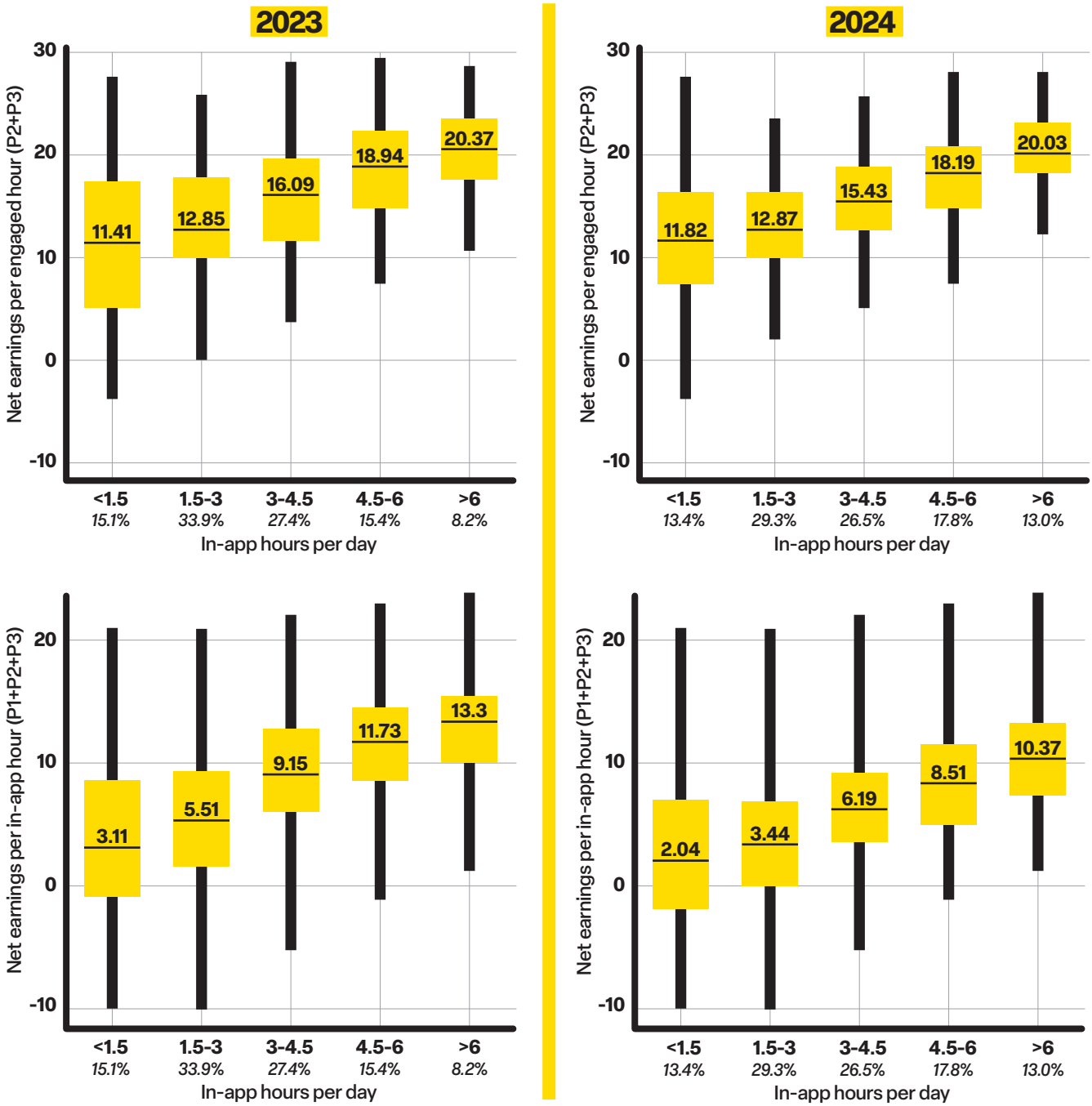
A third factor that may explain the variation between our results and those of previous studies is their omission to account for drivers working on multiple PTC platforms simultaneously. Most studies rely on aggregated data from PTCs, including time spent in P1, which is then used to calculate hourly earnings. However, for drivers using multiple apps, P1 times may overlap. Since each platform does not know the usage patterns of drivers on other apps, the aggregate data often include duplicate time entries. Removing these duplicates is necessary in order to accurately estimate hourly earnings. To our knowledge, Parrott and Reich (2024) and Hyman et al. (2020) are the only studies that have successfully eliminated such duplicate times across platforms. However, Parrott and Reich's earnings calculations are based on 2022 IRS business mileage rates, while Hyman et al.'s are derived from aggregated week-level trip data for a single week in October 2019, making it difficult to accurately calculate driving expenses.

Given all these factors, we believe the sheer scale of our study, which draws from an 84-million record dataset of every PTC trip starting in the city of Toronto between January 1st, 2023 and May 1st, 2024, along with the use of specific PTC vehicle data to more accurately account for both fixed and variable driving costs, provides the most accurate depiction of PTC driver earnings to date.

The distribution of net earnings increases linearly with the number of hours worked per day, as expenses are spread over a greater number of working hours. As shown in Figure 3, the median net earnings per engaged hour for PTC drivers in 2023 ranged from $11.41 per hour for those logged into the app for less than 1.5 hours per day to $20.37 for those logged in for more than 6 hours per day. In 2024, these net earnings were $11.82 and $20.03, respectively. However, when considering net earnings on a per in-app hour basis, all daily in-app hour thresholds revealed median earnings below the minimum wage of $16.55 per hour, which was in effect during our study period in Ontario.

Finally, as alluded to in the literature review, while reporting median driver earnings is informative, it is equally important to consider the variations in earnings and assess the proportion of drivers earning below the minimum wage. In Figure 4, we show the proportion of drivers earning below Ontario's then minimum wage of $16.55 per engaged and in-app hour of PTC work. The notably high proportion of PTC drivers earning below minimum wage in Toronto, particularly when considering in-app time, is consistent with findings from other jurisdictions. For example, in New York, Parrott and Reich (2018) reported that, after accounting for expenses, 85% of app-based drivers earned less than USD $17.22 per hour, equivalent to the State's USD $15 per hour minimum wage plus a paid time-off supplement of USD $2.22 per hour. Similarly, studies in Chicago and California by Manzo and Bruno (2021) and Reich (2020), respectively, found that the average PTC driver earned below minimum wage.

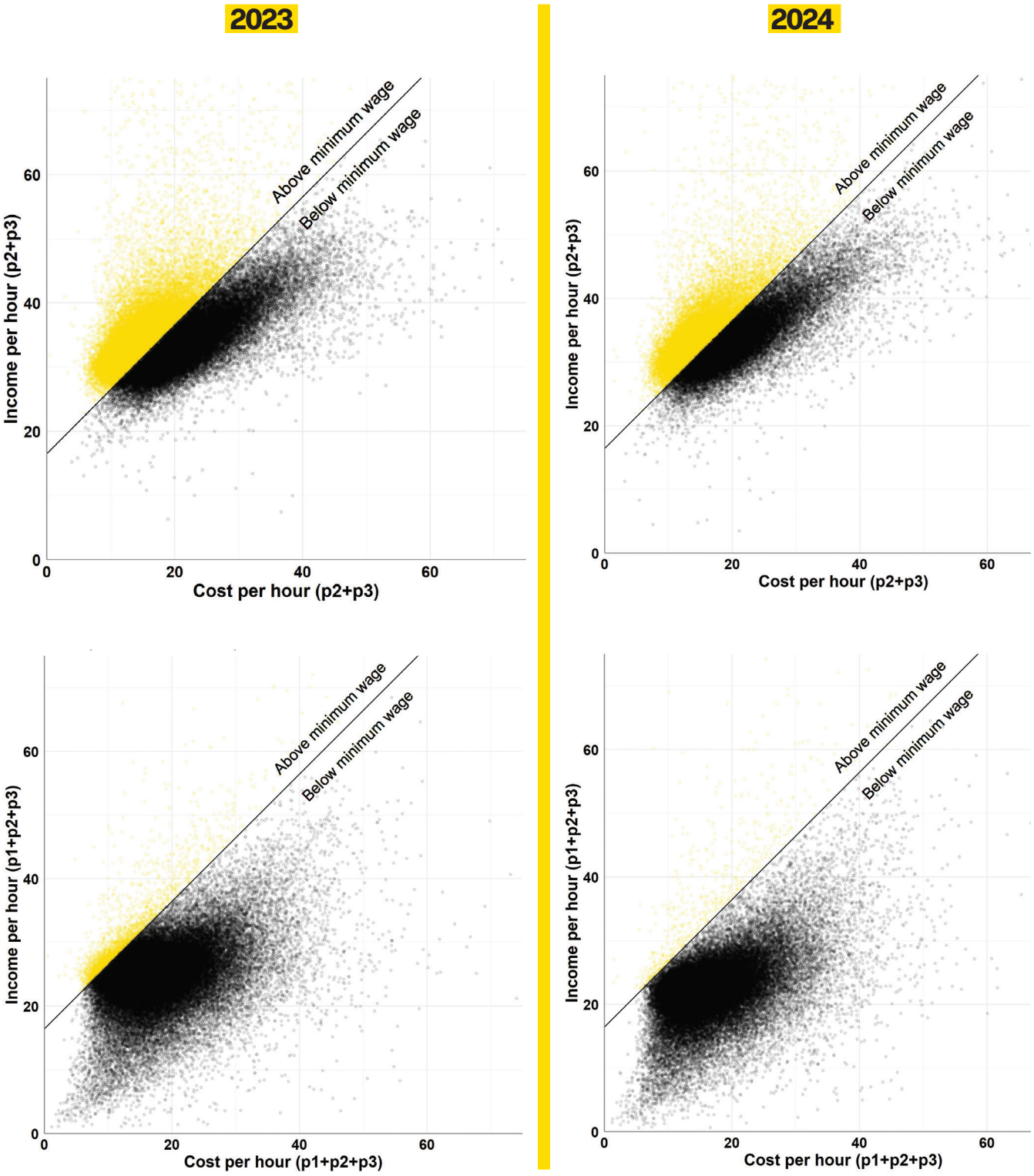
Figure 3: Net driver earnings per daily hours worked



Utilization rate analysis

To determine whether the utilization rate, calculated as (P3/(P1 + P2 + P3)), is associated with drivers' earnings, we plot net driver earnings per in-app hour of PTC work for different utilization rate thresholds. Figure 5 illustrates the positive relationship between these two variables and provides insight into the proportion of each working hour that must be spent engaged in trips to achieve specific earnings. While previous studies have shown that higher utilization rate targets may enhance drivers' average hourly pay (Alnaggar et al., 2024), our analysis indicates that even reaching high utilization rates is insufficient to guarantee decent PTC wages. All four utilization rate thresholds included in our analysis result in net earnings per in-app hour below the minimum wage rate of $16.55 per hour that was in effect in Ontario during our study period.

Figure 4: Proportion of PTC drivers earning above minimum wage per engaged and in-app hours of PTC work



PTC driver earnings per in-app hour can also be expressed as a function of their utilization rate. When plotting this relationship using gross driver earnings, we observe a stronger positive relation compared to net earnings (see Figure 6). This indicates that increasing or mandating a utilization rate target would likely boost driver earnings, particularly gross earnings. However, the weaker relationship with net earnings suggests that other factors, such as variable costs, significantly impact overall take-home pay. Therefore, additional policy measures, such as a minimum hourly pay guarantee, are needed to ensure PTC drivers receive fair wages.

Figure 5: Plotting the relationship between net PTC driver earnings per in-app hour and their associated utilization rate

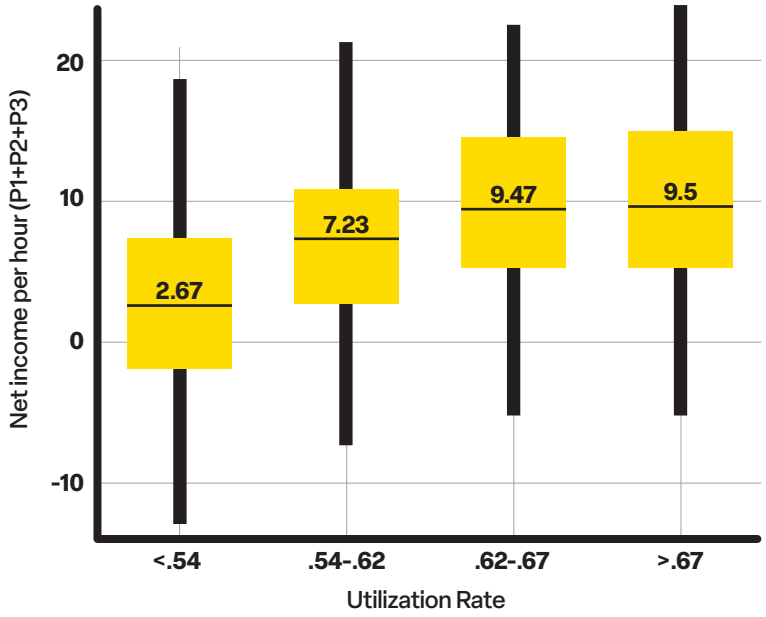
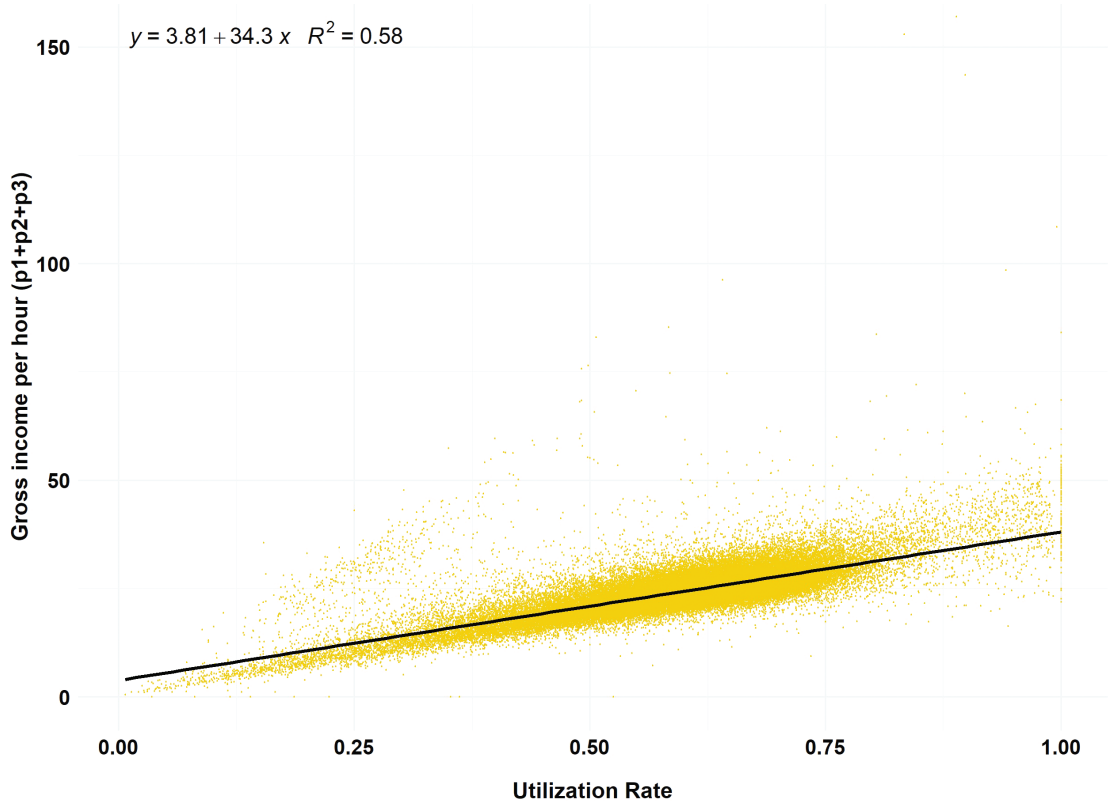
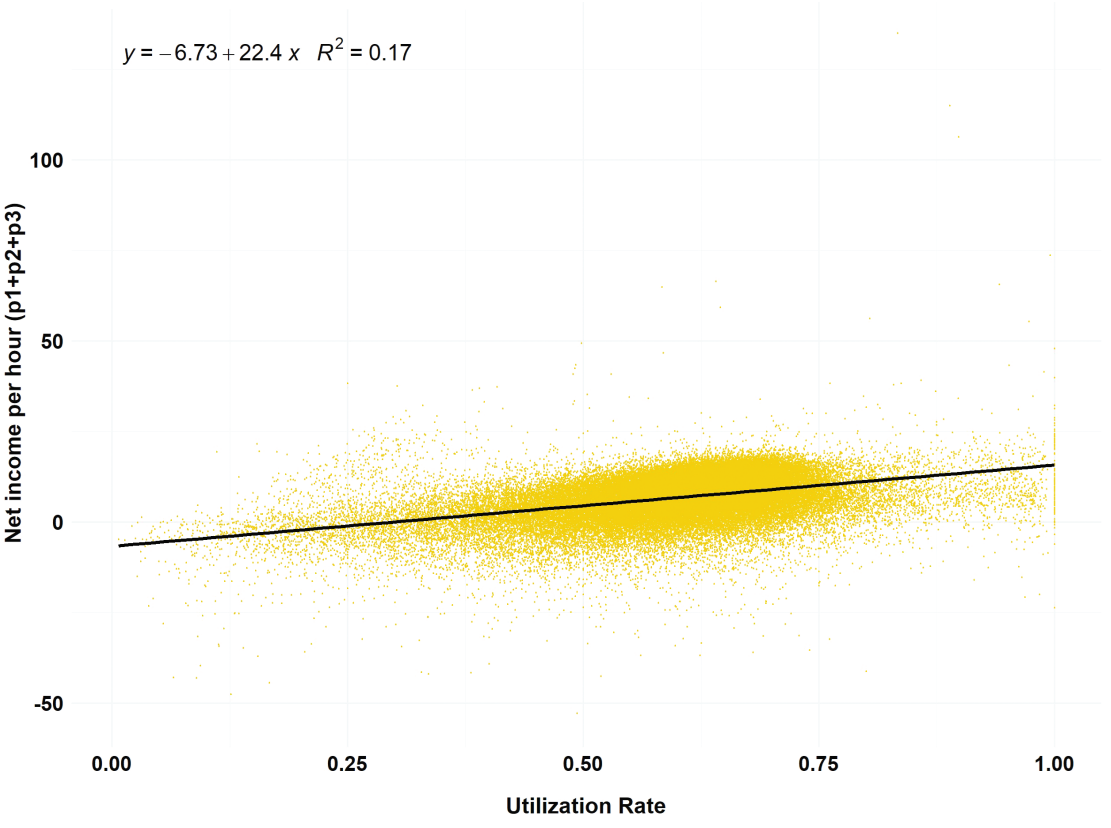


Figure 6: Plotting PTC driver earnings as a function of their utilization rate





Challenges, Limitations, & Future Data Needs

Data Limitations

The objective of this study was to assess the current state of wages and employment for drivers in Toronto's PTC industry. To achieve this, we obtained precise data on over 80 million PTC trips conducted in Toronto between January 1, 2023, and May 1, 2024. This dataset included detailed information on the type of ridehailing service (e.g., UberX, UberX Share, Lyft Standard, Lyft LUX, etc.), trip fare, trip distance, trip duration, start and end times, and location (accurate to the nearest intersection) for each of the three PTC work periods.

In addition to the trip dataset, we also obtained data on the year, model, and make of all licensed PTC vehicles, for which we were able to obtain a customized dataset of driving and ownership expenses from Vincentric, a private automobile data compilation and analysis firm. This dataset includes costs related to depreciation, insurance, fuel, repairs, maintenance, financing, and registration and license plate fees and taxes. As each driver is associated with one or more vehicle identification numbers (VIN), we were able to link the vehicle information to the trip dataset and in turn calculate net earnings by combining gross earnings with associated expenses for PTC work.

While we aimed to achieve the most accurate driving net earning estimates as possible with the data available, several challenges and limitations should be noted on both the earnings and expense sides of this estimation.

Earnings calculations

It is worth prefacing a discussion surrounding the challenges and limitations faced in estimating PTC net driver earnings by acknowledging that a more precise assessment would have been possible using data on actual driver earnings. The absence of this data is what prompted us to undertake these earnings calculations in the first place.

As we were unable to obtain driver earning data from either of the PTC platforms directly, we relied on the Uber rate cards from January 2024, submitted to the City of Toronto as part of the written submission for item EX12.1 of the Executive Committee Meeting 12 agenda (RDAO, 2024). While we do not expect significant rate changes during the timeframe of our study, we recognize that the omission of potential rate fluctuations may have affected our earnings calculations. However, without access to data on any rate changes, we cannot determine whether this omission has led to an overestimation or underestimation of gross earnings.

The rate card used for Lyft trips in this study applied exclusively to Lyft Standard trips, which led us to exclude all other types of Lyft services. We do not view this as a significant issue, as Lyft Standard trips accounted for the significant majority of all Lyft trips in our dataset but acknowledge that excluding other types of Lyft trips may result in missing some earnings and expenses for a small subset of TNC drivers. It is worth noting that Lyft's rate card also varies depending on whether drivers have activated Lyft's "Priority Mode." Since our dataset does not specify whether a driver had Priority Mode enabled, we assumed that this option was disabled for all trips, as it is only available to drivers with high driving scores. Nonetheless, given that enabling Priority Mode is supposed to increase the likelihood of

receiving ride requests, this assumption may result in an underestimation of Lyft driver earnings. However, it's important to note that enabling Priority Mode also comes with a lower per-minute and per-kilometer earning rate, which could imply that our assumption may have led to an overestimation of Lyft driver earnings in some cases.

While the majority of PTC driver earnings can be estimated using the trip dataset, certain elements were missing. This includes whether a trip was conducted with a pet-friendly vehicle (e.g., Uber Pet, Lyft Pet Ride), which adds an additional charge to the passenger fare, and whether it was booked in advance, which incurs additional reservation fees. By excluding these elements from our gross earnings calculations, we acknowledge the potential for underestimation, though we expect this to have a minimal impact due to the relatively low frequency of such trips.

Our data also does not include information on tips or surge pricing. To account for tips, we incorporated estimates from previous studies (Parrott and Reich, 2018; Manzo and Bruno, 2021), assuming that drivers receive an average of $0.80 per trip in tips. This estimate was added to our earnings calculations for both Uber and Lyft drivers. For surge pricing, we determined the expected passenger fare-to-driver earnings ratio using the Uber rate card (i.e., 40-60% before tips) and identified all trips with a ratio below 40% as being subject to surge pricing. We then adjusted the earnings for these trips to reflect the average fare-to-earnings ratio (i.e., 50% before tips), ensuring a more accurate representation of the typical fare-to-earnings relationship. We recognize that these are estimates and may not fully capture the actual impact of tips and surge pricing, and believe that future studies would benefit from obtaining this data from PTCs directly.

Another limitation is that our analyses only include trips that began within Toronto, as those that started beyond the city limits could not be matched to the PTC licensed vehicle dataset. Consequently, earnings and expenses from drivers not licensed to operate PTC vehicles in Toronto are excluded from the study. In most cases, we do not consider this to be a significant issue, as only 0.1% of PTC trips in our dataset extend beyond the borders of the Toronto operating region. Furthermore, while trips by drivers licensed to operate in Mississauga, who pick up passengers at the airport and return to Toronto, are not captured, trips originating in Toronto and ending at the airport are included in our analysis.

On a somewhat related note, our dataset only includes passenger trips conducted on PTC platforms and does not account for other forms of work offered by app-based transportation platforms, such as food delivery (e.g., UberEats), grocery delivery, or any other non-passenger transportation services. This represents a potentially significant limitation, as we assume that some PTC drivers may engage in other forms of transportation-related work, which may reduce their time spent in P1. By not including these earnings and expenses in our wage calculations, we may be misrepresenting these drivers' net earnings. Ultimately, we chose not to speculate on the proportion of drivers involved in these other forms of transportation-related work or the associated earnings and expenses, but this represents an important area for future research.

Expense calculations

After calculating gross PTC driver earnings, we sought to subtract their associated costs. Using the year, model, and make of all licensed PTC vehicles, we obtained a customized dataset of fixed and variable driving and ownership expenses from Vin-

centric. While the level of detail and precision of the expense data provided by Vincentric allows for a more accurate estimate of costs compared to previous studies, there are still challenges and limitations in estimating PTC driver expenses.

First, Vincentric provides data on an annual basis for the next five years (2024-2029) but assumes that all drivers have purchased their vehicle in August 2024. While the vehicle purchase itself is not included in our expense calculation as we view it as a depreciating asset owned by the driver, which may in turn be sold, this does affect the value of other expenses such as depreciation, financing, fees and taxes. To account for this, we use the average annual expense from 2024-2029 for 2018 vehicle models or later, and the average annual expense from 2025-2029 for older vehicles to avoid including the unusually high first year after purchase sales tax and depreciation quantities for these categories of expenses. Similarly, as we do not know the exact date of purchase, we chose to use the average annual expense from 2024-2029 for maintenance and repair costs, rather than relying solely on the 2024 expense. We view this as a limitation as it introduces some level of error into our expense calculations, yet we cannot know whether this approach has led to an over or underestimation of costs without knowing the actual purchase date of licensed PTC vehicles. Moreover, by treating the vehicle as a depreciating asset and assuming that all drivers have purchased their vehicles rather than lease them, we believe that our approach likely underestimates costs, as leasing expenses are excluded from the model.

Second, since fixed expenses cannot be entirely attributed to PTC work and must instead be proportionally allocated based on the fraction of annual kilometers driven for PTC purposes, it is important to know how many kilometers PTC drivers undertake for personal use annually. Unfortunately, this data was unavailable. As a result, we assumed that PTC drivers use their vehicles for personal reasons at a rate of 20,000 kilometers annually, based on the estimate used by Natural Resources Canada (Natural Resources Canada, 2023), and allocated fixed expenses accordingly. We acknowledge that this assumption significantly impacts the estimated fixed costs of PTC drivers. However, by opting for a higher annual kilometer estimate than both the average of 16,249 kilometers for Canadian drivers from an earlier Statistics Canada survey (Statistics Canada, 2009) and the average of 14,448 kilometers for Ontario drivers according to insurance data (Insurance Hotline, 2021), we believe this approach is more likely to result in an underestimation rather than an overestimation of expenses.

Third, while most driving and ownership expenses were accounted for in our analysis, PTC drivers also incur other expenses. These include cell phones with a data plan, vehicle cleaning fees, parking and traffic violations, and the risk of crashes or injuries with expenses left uncovered by insurance. Other studies (Henao and Marshall, 2019; Mishel, 2019; Reich and Parrott, 2020) have attempted to account for some of these miscellaneous costs. We chose to restrict our analysis to cost directly incurred through the vehicle, but similarly to our previous decision, this may also have resulted in the underestimation of PTC driver expenses.

Fourth, PTC platforms do not withhold income tax from drivers' earnings, meaning that drivers are individually responsible for paying their own taxes. Many driving-related expenses, however, may be eligible for full or partial tax deductions as business expenses. According to Uber (Uber 2024), deductible expenses can include vehicle insurance, maintenance costs, cell phone expenses, tolls, parking fees, mileage, sales tax on fees charged to drivers, and customer discounts. Since we do not know the total income of drivers from all sources of income, and hence their tax rate, nor do we know the proportion of drivers who claimed deductions or which specific expenses were claimed, we opted to report pre-tax earnings in this report. This is in line with all other studies encountered in the literature.

Data needs and improvements to the data collection process

Based on the above-mentioned challenges in calculating net PTC driver wages and limitations with the data, we offer the following recommendations to more accurately assess the net earnings of PTC drivers:

1. To improve the accuracy of driving and ownership cost estimations, it would be important to have information on the drivers' vehicle lease period (if leased) or year of purchase (if purchased) and total annual mileage for vehicles licensed for PTC services. This would allow for more precise calculations of PTC-related expenses and eliminate the need to assume that PTC drivers use their vehicles for personal reasons at an annual rate of 20,000 kilometers.
2. Ideally to more accurately estimate the net earnings of PTC drivers we would need the following:

a. Information on the presence and extent of surge pricing, either on a trip-by-trip basis or, at minimum, hourly data indicating the level of surge pricing and areas where it was in effect.

b. Information on the amount of tips received per trip.

c. Information on drivers operating in Toronto with a license to operate PTC vehicles in surrounding jurisdictions, but without a Toronto license. This would enable the inclusion of revenues and expenses from trips outside of Toronto, such as pickups from Toronto Pearson Airport.

d. Information on PTC trip refusals. This was raised as a potential issue by PTCs, as drivers may systematically refuse trip requests, thereby remaining in P1 while not really being available for work. Having information on refusal frequency per driver would allow for more accurate net earnings estimations by excluding such periods.

e. Information on other forms of gig-work offered by PTC platforms, such as food delivery (e.g., UberEats), that can be linked to drivers in order to better estimate their overall industry net earnings.

f. Accurate and up-to-date PTC driver rate cards, including service fees taken by the platforms and any additional elements affecting drivers' earnings beyond those specified in the rate card.

3. While obtaining the elements outlined in (2) would provide a more accurate depiction of gross driver earnings in the PTC industry, they entail considerable effort on the part of PTC platforms, which would need to compile, update, and transmit data, including continuous updates to their driver earnings fare cards to regulators. A simpler and less error-prone solution would be for PTC platforms to share data on their driver earnings. Access to precise gross PTC driver earnings would eliminate many, if not most, of the challenges in our estimations and ensure greater transparency, particularly given the platforms' recent announcement to transition from traditional earning rate cards to upfront pricing.

PTCs have announced their intention to shift towards upfront pricing models in Toronto, with Uber officially announcing the transition to this pricing approach on October 8th, 2024 (Subramaniam, 2024). This change renders it impossible to estimate PTC

driver earnings using the information comprised within the current data sharing agreement nor with the additional information requests outlined in (2). Therefore, if regulators at any level of government intend to calculate PTC driver earnings going forward, it is crucial for them to obtain gross driver earnings directly from the platforms or develop a reliable method for accurately calculating these earnings. If the goal is to understand the future state of wages for drivers in Toronto's PTC industry and to make meaningful temporal comparisons, particularly when assessing the effectiveness of policies or legislation designed to ensure fair driver compensation, access to PTC driver wage data under an upfront pricing model is crucial.

References

Alnaggar, A., Gzara, F., & Bookbinder, J. H. (2024). Compensation guarantees in crowdsourced delivery: Impact on platform and driver welfare. *Omega, 122*, 102965.

Bursztynsky, J. (2021). Why many Uber and Lyft drivers aren't coming back. CNBC.
https://www.cnbc.com/2021/07/04/why-many-uber-and-lyft-drivers-arent-coming-back.html

Canada. (2018). Submission to OECD: Taxis, ride-sourcing and ride-sharing services.
https://competition-bureau.canada.ca/how-we-foster-competition/promotion-and-advocacy/regulatory-adviceinterventions-competition-bureau/submission-oecd-taxis-ride-sourcing-and-ride-sharing-services

Chaum, M. (2023). Understanding upfront fares. *Medium*.
https://medium.com/uber-under-the-hood/understanding-upfront-fares-491cbaf975d6

Co-op Cabs. (2024). Existing Brokerage Agreement.
https://co-opcabs.com/brokerage-agreement/

Cook, C., Diamond, R., Hall, J. V., List, J. A., & Oyer, P. (2021). The gender earnings gap in the gig economy: Evidence from over a million rideshare drivers. *The Review of Economic Studies, 88*(5), 2210-2238.

Fehr & Peers. (2019). Estimated Percent of Total Driving by Lyft and Uber: In Six Major U.S. Regions, September 2018. Commissioned by Lyft and Uber.

Gorelick, E. (2024). Uber is locking out NYC drivers mid-shift to lower minimum pay. Bloomberg.
https://www.bloomberg.com/news/articles/2024-06-24/uber-is-locking-out-new-york-city-drivers-mid-shift-to-lower-minimum-pay

Government of Canada. (2024). Taxi Driver in Canada: Prevailing wages in Canda.
https://www.jobbank.gc.ca/marketreport/wages-occupation/10557/ca

Hall, J. V., & Krueger, A. B. (2018). An analysis of the labor market for Uber's driver-partners in the United States. *Ilr Review, 71(3)*, 705-732.

Hawkins, A. (2020). Uber's response to COVID-19 : face masks, selfies, and fewer people in the car. *The Verge*.
https://www.theverge.com/2020/5/7/21251111/uber-q1-earnings-rides-loss-eats-delivery-coronavirus

Henao, A., & Marshall, W. E. (2019). An analysis of the individual economics of ride-hailing drivers. *Transportation Research Part A: Policy and Practice, 130*, 440-451.

Hyman, L., Groshen, E. L., Litwin, A. S., Wells, M. T., Thompson, K. P., & Chernyshov, K. (2020). Platform driving in Seattle.

Insurance Hotline (2021). Did Ontario motorists drive fewer kilometers in 2020?
https://www.insurancehotline.com/resources/did-ontario-motorists-drive-fewer-kilometres2020#:~:text=According%20to%20Insurance-Hotline.com's%20data,14%2C725%20kilometres%20driven%20in%202019

Koustas, D., Parrott, J. A., & Reich, M. (2020). New York City's gig driver pay standard: Effects on drivers, passengers, and the companies. https://escholarship.org/uc/item/3xb4152

Kuntzman, G. (2023). Judge blocks city from its plan to ussue unlimited EV Uber/Lyft licenses. *StreetsBlogNYC*. https://nyc.streetsblog.org/2023/11/09/judge-blocks-city-from-its-plan-to-issue-unlimited-ev-uber-lyft-licenses

Li, S., Poolla, K., & Varaiya, P. (2021). Impact of congestion charge and minimum wage on TNCs: A case study for San Francisco. T*ransportation Research Part A: Policy and Practice, 148*, 237-261.

Loa, P., Hossain, S., Liu, Y., & Habib, K. N. (2022). How has the COVID-19 pandemic affected the use of ride-sourcing services? An empirical evidence-based investigation for the Greater Toronto Area. *Transportation Research Part A: Policy and Practice, 155*, 46-62.

Manzo, F., & Bruno, R. (2021). On-demand workers, sub-minimum wages: evidence from Transportation Network Providers Trips in the city of Chicaco. Illinois Economic Policy Institute. https://illinoisupdate.com/wp-content/uploads/2021/01/ilepi-pmcr-on-demand-workers-sub-minimum-wages-final.pdf

Minneapolis. (2024). Amending Title 13, Chapter 343 of the Minneapolis Code of Ordinances relating to Licenses and Business Regulations: Transportation Network Companies. https://lims.minneapolismn.gov/Download/FileV2/32072/Transportation-Ride-Share-Worker-Protection-Ordinance.pdf

Mishel, L. (2018). Uber and the labor market: Uber drivers' compensation, wages, and the scale of Uber and the gig economy. https://www.epi.org/publication/uber-and-the-labor-market-uber-drivers-compensation-wages-and-the-scale-of-uber-and-the-gig-economy/

Natural Resources Canada. (2023). 2023 Fuel Consumption Guide. Government of Canada. https://natural-resources.canada.ca/sites/nrcan/files/oee/pdf/transportation/fuel-efficient-technologies/2023%20Fuel%20Consumption%20Guide.pdf

OECD. (2007). (De)regulation of the taxi industry. European Conference of Ministers of Transport. Round table 133. https://www.oecd-ilibrary.org/transport/de-regulation-of-the-taxi-industry_9789282101155-en

OECD. (2018). Taxi, ride-sourcing and ride-sharing services – summaries of contributions. Directorate for financial and enterprise affairs competition committee. https://one.oecd.org/document/DAF/COMP/WP2/WD(2018)1/en/pdf

Parrott, J. A., & Reich, M. (2018). An earnings standard for new york city's app-based drivers. *New York: The New School: Center for New York City Affairs*.

Parrott, J. A., & Reich, M. (2024). Transportation network company driver earnings analysis and pay standard options. Minnesota department of labor and industry. https://www.dli.mn.gov/sites/default/files/pdf/TNC_driver_earnings_analysis_pay_standard_options_report_030824.pdf

References

Rahel, S. (2016). Economics of the taxi industry: An Uber shake-up (Doctoral dissertation, University of Wyoming).

Rideshare Drivers Association of Ontario (RDAO). (2024). Written submission regarding TNC driver earnings in Toronto. *Executive Committee, Meeting 12, Item EX12.1*.
https://www.toronto.ca/legdocs/mmis/2024/ex/comm/communicationfile-177743.pdf#page=6.67

Reich, M., & Parrott, J. A. (2020). A Minimum Compensation Standard for Seattle TNC Drivers.
https://escholarship.org/uc/item/1fw4q65g

Ridefair. (2024). Legislating Poverty. Ridefair.
https://ridefair.ca/wp-content/uploads/2024/02/Legislated-Poverty.pdf

Seattle. (2024). Transportation Network company minimum compensation ordinance. Office of Labor Statistics.
https://www.seattle.gov/laborstandards/ordinances/tnc-legislation/minimum-compensation-ordinance

Sherriff-Scott, I. (2018). Ride-sharing bylaw put on hold. The Queen's University Journal.
https://www.queensjournal.ca/ride-sharing-bylaw-put-on-hold/

Statistics Canada (2009). Canadian Vehicle Survey: Annual.
https://www150.statcan.gc.ca/n1/pub/53-223-x/53-223-x2009000-eng.pdf#page=2.08

Statistics Canada (2023). Labour Force Survey, December 2023.
https://www150.statcan.gc.ca/n1/daily-quotidien/240105/dq240105a-eng.htm

Subramaniam, V. (2024). Uber drivers in Ontario will now have their wages determined entirely by an algorithm. *The Globe and Mail*.
https://www.theglobeandmail.com/business/article-uber-driver-pay-algorithm-ontario/

Sum. W. (2021). Vehicles for Hire Bylaw – Taxi and TNC Parity Review. City of Saskatoon.
https://pub-saskatoon.escribemeetings.com/filestream.ashx?DocumentId=129809

TLC. (2018). Notice of Promulgation. New York City's Taxi & Limousine Commission.
https://www.nyc.gov/assets/tlc/downloads/pdf/driver_income_rules_12_04_2018.pdf

TLC. (2024a). Green rides. New York City's Taxi & Limousine Commission.
https://www.nyc.gov/site/tlc/about/green-rides.page

TLC. (2024b). Yellow cab. New York City's Taxi & Limousine Commission.
https://www.nyc.gov/site/tlc/businesses/yellow-cab.page

Toronto. (2012). Toronto's taxicab industry. Discussion Paper.
https://www.toronto.ca/legdocs/mmis/2012/ls/bgrd/backgroundfile-50094.pdf

Toronto. (2021). The Transportation Impacts of Vehicle-for-Hire in the City of Toronto: October 2018 to July 2021. Data & Analytics Unit of City of Toronto.
https://www.toronto.ca/wp-content/uploads/2021/11/98cd-VFHTransportationImpacts2021-11-23.pdf

Toronto. (2024). Vehicle-for-Hire public & stakeholder engagement.
https://www.toronto.ca/wp-content/uploads/2024/06/9012-vehicle-for-hire-2024-consultation-presentation.pdf

Uber. (2022). Uber Canada and UFCW Canada reach historic national agreement to benefit drivers and delivery people. Uber Newsroom.
https://www.uber.com/en-CA/newsroom/uber-canada-and-ufcw-canada-reach-historic-national-agreement-to-benefit-drivers-and-delivery-people/

Uber. (2024). Your tax questions, answered.
https://www.uber.com/ca/en/drive/tax-information/

US Bureau of Labor Statistics. (2024). Occupational Employment and Wage Statistics.
https://www.bls.gov/oes/2023/may/naics4_485300.htm

Valinsky, J. (2024). Lyft and Uber to cease operations in Minneapolis after new minimum wage law. CNN.
https://www.cnn.com/2024/03/15/business/uber-lyft-minneapolis-minimum-wage/index.html

Vincentric. (2024). Vincentric Data. https://vincentric.com/Home/About-Us/Vincentric-Data

Waheed, S, Herrera, L, Gonzalez-Vasquez, A.-L., Shadduck-Hernandez, J., Koonse, T. & Leynov, D. (2018). More than a Gig: a survey of ride-hailing drivers in Los Angeles. UCLA Labor Center.
https://labor.ucla.edu/publications/more-than-a-gig/

Washington State. (2024). Compensation Requirements. Washington State Department of Labor & Industry.
https://lni.wa.gov/workers-rights/industry-specific-requirements/transportation-network-company-drivers-rights/getting-paid

Zoepf, S. (2018). The Economics of Ride Hailing, Revisited.
MIT Center for Energy and Environmental Policy Research.

Zoepf, S. M., Chen, S., Adu, P., & Pozo, G. (2018). The economics of ride-hailing: Driver revenue, expenses and taxes. *CEEPR WP*, *5*(2018), 1-38.

Technical Appendix

Driver expense calculations

The costs associated with PTC driving are determined using the vehicle's year, model, and make and are provided by Vincentric on an annual basis for the next five years (2024-2029). Total costs *(C_total)* are comprised of fixed expenses *(C_fixed)*, which include insurance, financing, and fees & taxes and variable expenses *(C_variable)* which in turn include fuel, maintenance, repairs, and depreciation.

$$C_{total} = C_{fixed} + C_{variable}$$

$$C_{total} = (C_{insurance} + C_{finance} + C_{fee}) + (C_{maintenance} + C_{repair} + C_{depriciation})$$

Fixed costs are proportionally allocated based on the assumption that PTC drivers also use their vehicles for personal purposes. We assume that PTC drivers use their vehicles for personal reasons at a rate of 20,000 kilometers annually, as per the annual kilometers driven assumption used by Natural Resources Canada (Natural Resources Canada, 2023), and attribute fixed expenses based on the fraction of total annual kilometers driven for PTC work.

Where,

$C_{insurance}$ = Annual insurance cost

$C_{finance}$ = Annual finance cost

C_{fee} = Annual cost of registration and licensing fees and taxes

D_{RH} = Annual kilometers driven while working on PTC platforms

D_{PU} = Annual kilometers driven for personal use (assumed to be 20,000 km per year)

Furthermore, as some expenses vary based on the year of purchase and our dataset assumes all vehicles were purchased in 2024, we used the average annual expense from 2024-2029 (5 years) for 2018 vehicle models or later, and the average annual expense from 2025-2029 (4 years) for older vehicles. This approach was applied to the annual finance costs, annual cost of registration and the licensing fees and taxes. For insurance, the 2024 annual insurance costs was used.

$$C_{insurance} = C_{insurance^{2024}}$$

$$C_{finance} = \begin{cases} \frac{1}{5} \sum_{i=2024}^{2028} C_{finance^i} & \text{if vehicle purchase year} \geq 2018 \\ \frac{1}{4} \sum_{i=2025}^{2028} C_{finance^i} & \text{if vehicle purchase year} < 2018 \end{cases}$$

$$C_{fee} = \begin{cases} \frac{1}{5} \sum_{i=2024}^{2028} C_{fee^i} & \text{if vehicle purchase year} \geq 2018 \\ \frac{1}{4} \sum_{i=2025}^{2028} C_{fee^i} & \text{if vehicle purchase year} < 2018 \end{cases}$$

Variable costs are calculated based on the driver's annual kilometers driven while working on a PTC platform.

$$C_{variable} = C_{fuel} + C_{maintenance} + C_{repair} + C_{depriciation}$$

Where,

$C_{fuel} = C_f$ = Annual cost for fuel consumption

$C_{depriciation} = C_d$ = Annual cost of vehicle depreciation

$C_{maintenance} = C_m$ = Annual cost for vehicle maintenance

$C_{repair} = C_r$ = Annual cost for vehicle repairs

Fuel expenses were obtained on a per kilometer basis, whereas other variable expenses were obtained from Vincentric for three distinct distance thresholds (5,000km, 25,000km, and 60,000km). These thresholds were chosen to best reflect the driving patterns of PTC drivers in our sample and estimated driver costs are prorated to reflect their actual driving distance.

$$C(x) = \begin{cases} C_{m1}, C_{r1}, C_{d1} \; x = 5000km \\ C_{m2}, C_{r2}, C_{d3} \; x = 25{,}000km \\ C_{m3}, C_{r3}, C_{d3} \; x = 60{,}000km \end{cases}$$

Based on the actual annual kilometers traveled, a linear interpolation approach was then used to determine the proportional variable costs *(C(x))*. An example of this methodology is present below with maintenance costs *(C_maintenance)*.

$$C_{maintenance} = \begin{cases} C_{m1} \times \frac{D_{RH}}{5{,}000}, & \text{for } D_{RH} \leq 5{,}000km \\ C_{m1} + \frac{(C_{m2} - C_{m1})(D_{RH} - 5{,}000)}{20{,}000}, & \text{for } 5{,}000km < D_{RH} \leq 25{,}000km \\ C_{m2} + \frac{(C_{m3} - C_{m2})(D_{RH} - 25{,}000)}{35{,}000}, & \text{for } 25{,}000km < D_{RH} \leq 60{,}000km \\ C_{m3} + \frac{(C_{m3} - C_{m2})(D_{RH} - 60{,}000)}{35{,}000}, & \text{for } D_{RH} > 60{,}000km \end{cases}$$

Similar to finance and registration fees & taxes, depreciation also varies depending on the date of purchase. We therefore apply the same methodology as described above and used the average annual expense from 2024-2029 (5 years) for vehicle models or later, and the average annual expense from 2025-2029 (4 years) for older vehicles.

$$C_{depriciation} = \begin{cases} \frac{1}{5} \sum_{i=2024}^{2028} C_{depriciation^i} & \textit{if vehicle purchase year} \geq 2018 \\ \frac{1}{4} \sum_{i=2025}^{2028} C_{depriciation^i} & \textit{if vehicle purchase year} < 2018 \end{cases}$$

In summary, the total costs associated with PTC driving can be expressed as follows:

$$C_{total} = \frac{D_{RH}}{D_{PU} + D_{RH}} \left(C_{insurance} + C_{finance} + C_{fee} \right) + C_{fuel} + C_{maintenance} + C_{repair} + C_{depriciation}$$

On the Road

Analysis of Driver Earnings
in Toronto's Vehicle-for-Hire Industry

Mischa Young, Ph.D.
Assistant professor, Université de l'Ontario Français
mischa.young@uontario.ca

Steven Farber, Ph.D.
Professor, University of Toronto
steven.farber@utoronto.ca

Mashrur Rahman, Ph.D.
Postdoctoral researcher, University of Toronto
mashrur.rahman@utoronto.ca

Final report submitted to the City of Toronto, Municipal Licensing and Standards Division, 2024

Design & Layout by Matthew Blackett