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IRLE WORKING PAPER
#107-20
October 2020

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Cite as: Michael Reich. (2020). "Pay, Passengers and Profits: Effects of Employee Status for California TNC Drivers". IRLE Working Paper No. 107-20.
http://irle.berkeley.edu/files/2020/10/Pay-Passengers-and-Profits.pdf

Berkeley
UNIVERSITY OF CALIFORNIA

October 5, 2020

Pay, Passengers and Profits

Effects of Employee Status for California TNC Drivers

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I am grateful to the University of California, Berkeley, for supporting this research. I presented an earlier version at the 2020 LERA meetings. I draw upon previous research on AB5 conducted with my Berkeley colleague Ken Jacobs, as well as ongoing research with Dmitri Koustas of the University of Chicago and James Parrott of the New School. I thank Joslyn Fu, Susan Houseman, Ken Jacobs, Meera Joshi and James Parrott for their comments. I am also grateful to Kerem Levitas of the Seattle Office of Labor Standards for providing the Lyft passenger rate card links and to Jenifer MacGillvary for her editorial assistance. Parts of this paper draw from my independent expert declaration, commissioned by the Attorney General of California in the case of The People vs. Uber and Lyft. I have no other conflicts of interest.

Key Findings

1. **Full-time and half-time drivers do most of the driving.** Uber and Lyft's part-time and casual drivers work mainly on evenings and weekends. The full-time workers depend on their earnings from driving to provide the main economic support for themselves and their families.

2. **Most California drivers are paid less than the minimum wage**. Low pay results directly from the industry's business model: an excess number of drivers relative to the demand for rides, resulting in long waiting times between rides and inefficient use of drivers and their vehicles.

3. **Employee status would increase total driver compensation by about 30 percent**. The gains for drivers include higher net hourly wages, mandated benefits such as workers' compensation and unemployment insurance, compensation for all hours worked, and fully reimbursed expenses during all hours worked.

4. **The companies would continue to employ part-time drivers,** to meet the large fluctuations in demand between peak and off-peak hours. Casual and part-time drivers could benefit because they would earn more by driving during *off-peak* hours, such as weekday afternoons.

5. **Fare increases would be modest, 5 to 10 percent**, depending on how much companies reduce their excessive commissions. Two-thirds or more of the higher labor costs would be absorbed by reduced driver waiting times between rides, reduced driver turnover costs, and reductions in the companies' commission rates.

6. **Passenger demand is not very responsive to price changes;** a price increase of 5 to 10 percent would reduce passenger demand by only 1 to 2 percent.

7. **Total company revenue and commissions would be higher, not lower.** The decline in the number of fares will be smaller than the fare increases. The result: higher revenue and total commissions.

1. Introduction

Uber and Lyft currently treat their California drivers as independent contractors, despite state employment law giving the drivers employee status. The companies claim that drivers are already well-paid and that employee status would bring the industry to its knees. Driver advocates claim that drivers are low-paid and do not receive basic benefits and protections, such as unemployment insurance and workers' compensation, and that the companies should treat the drivers as employees and adhere to California employment law.

I examine here the economic and financial consequences of switching the drivers to employee status. In particular, I examine the effects on pay and employment of the drivers, the effects on passengers, and the profitability of the industry. I find that: most drivers are paid much less than the current minimum wage and that overall compensation of drivers would increase 30 percent; that driver schedule flexibility would not be affected; passenger demand would fall by 1 or 2 percent; and profits of the companies would increase.

Since at least 2016, multiple administrative, judicial, and legislative decisions in California have determined that the drivers are employees. Uber and Lyft claim that they are not subject to these decisions and that most of the drivers prefer the flexibility provided by their current arrangement. The companies also claim that a shift to employee status is incompatible with their current business model.

The company's economic claims and the effects of employee status ideally would be assessed using their California data, as Parrott and Reich (2018) were able to do with their New York City data. Neither Uber nor Lyft will share California data on their drivers' trips, hours, and earnings. I nonetheless piece together such an analysis from Uber's own California studies and from California data that Uber and Lyft have released to the California Air Resources Board and to the consulting company Fehr and Peers.

I rely here on these sources. I also use information that Uber and Lyft have made available to regulators in New York City, information in expert declarations presented by Uber and Lyft to the San Francisco Superior Court case (The People vs. Uber and Lyft), data in a survey of Seattle drivers, and results presented in other studies by independent researchers.

I also draw on a number of national studies by Uber economists and their co-authors (Hall and Krueger 2018; Chen et al. 2020; Cook et al. 2020; and Hall, Horton and Knoepfle 2020). Finally, I draw upon my other research papers and policy briefs on Uber and Lyft. These include a report on the effects of a driver pay standard in New York City (Parrott and Reich 2018; Koustas, Parrott and Reich 2020), an analysis of a driver pay standard for Seattle (Parrott and Reich 2020), and an assessment of the promises made to drivers in Proposition 22 (Jacobs and Reich 2019).

In Section 2, I examine the distribution of driver hours under independent contractor status. Section 3 examines the level and distribution of driver pay. Section 4 examines why driver pay is so low. Section 5 examines how driver compensation—wages benefits and reimbursed expenses—would change if drivers were treated as employees. Section 6 considers how the companies and consumers would absorb the increased labor costs and how company revenue and commissions will be affected when they treat drivers as employees. Section 7 concludes.

2. The driver workforce

Types of drivers All observers agree that the Uber and Lyft workforce consists of both very casual and full-time drivers. Indeed, national driver data indicate that drivers vary substantially in the number of weeks they regularly drive (Hall and Krueger 2018) and in how many months they work for Uber and Lyft (Mishel 2018; JPMC 2019).

To make sense of this variation, it is convenient to allocate the driver workforce into four groups:

1. **Full-time drivers**, who regularly work 32 hours or more weekly. Most of the full-time drivers depend upon driving for their primary source of income; many acquired their vehicle primarily to work in the industry.
2. **Regular part-time drivers**, who drive between 20 and 32 hours weekly. Some of these drivers may have other jobs.
3. **Regular casual drivers**, who drive between 10 and 19 hours most weeks. A large number of these drivers either have other jobs, or are students, or have family responsibilities.
4. **Irregular casual drivers**, who drive less than 10 hours per week when they do drive, and do not drive every week. Some of these drivers have just entered the industry and are trying it out. Others recently experienced a financial setback (Collins et al. 2019) and are driving to supplement their income from other sources.

How many of the rides are performed by each group of drivers? Lyft claims their typical driver uses the company "…sporadically when convenient; very few regularly even drive three hours at a time." (Lyft 2020, p. 10, line 3) and Uber claims "fewer than 36% [use the app] more than 10 hours a week" (Uber 2020, p. 30, line 4). Such claims may accurately represent those who do *any* work on the app over the course of a month or a year. As I show below, they present a grossly misleading picture of which drivers carry out *most of the work* for the companies.

Driver hours in California Since Uber and Lyft have not released California data on how hours worked vary among drivers, I turn to data that are available-- for Seattle and for the U.S. as a whole. In early 2020, the City of Seattle surveyed Uber and Lyft drivers for a study on driver pay. The survey data indicate that full-time drivers accounted for 55 percent

of the rides, and drivers working more than 20 hours a week accounted for 80 percent of the rides (Parrott and Reich 2020, p. 32). Administrative data provided by Uber and Lyft on Seattle drivers to Cornell researchers (Hyman 2020) suggest that 61 percent of the work is carried out by what they term part-time and full-time drivers, as opposed to "casual" and "committed casual" drivers. A JPMC national analysis of gig driver earnings similarly found that 10 percent of the drivers accounted for 56.9 percent of the work (Farrell et al. 2019, Exhibit 13).[1]

These patterns suggest the companies' references to the typical driver as very part-time significantly understate the centrality of full-time and regular part-time drivers in their business model. The majority of these drivers rely on their earnings from Uber and Lyft as their sole or main source of income. Many acquired a vehicle primarily to drive for Uber and Lyft (Parrott and Reich 2020). Most of these workers are driving 30,000 miles per year for the companies.

3. Driver pay

Uber and Lyft have resisted efforts by their regulator, the California Public Utilities Commission, to release trip and earnings data for their drivers. As a result, there is very little publicly available data on driver earnings in California.

The level of driver pay in the U.S. and in specific cities, such as New York City and Seattle, has been a focus of debate between Uber and Lyft and independent scholars. Lyft and Uber maintain that net driver hourly pay (i.e. after expenses) already exceeds the minimum wage. Independent scholars come to the opposite conclusion. Two main issues distinguish the company and company-funded studies from the independent studies:

1. Should waiting time be included in hours worked? Uber and Lyft consider as work time only the time when a passenger is in the vehicle and the time when a driver has accepted a ride and is traveling to pick up the passenger. This approach omits the 35 percent of their work time that drivers spend returning from outlying areas and waiting for another ride request (Fehr and Peers 2019). Uber and Lyft do not pay drivers for this waiting time, placing all of the risk on the drivers. Yet waiting time is required for the drivers to do their job. Common sense suggests that calculations of hourly pay should include all the time the drivers work. If drivers were employees, these times would be compensated.

2. What expenses should be counted? The companies argue that most drivers work only a few hours a week for Uber and Lyft, using vehicles they already own. The companies therefore argue that only the incremental expenses of driving passengers, such as gas and

[1] Benner et al. (2020) find an even higher proportion of full-time drivers in their survey of San Francisco drivers. However, their surveying method over-weights such drivers.

cleaning, should be included in expense calculations. They estimate these expenses at about 30 cents per mile and completely exclude driving expenses between trips. In other words, these estimates exclude most of the major costs associated with owning a vehicle (full depreciation, financing, license, registration, taxes, and insurance) that are incurred by drivers. Even drivers who work only 10 hours per week add about 5,000 miles to their vehicle each year. Parrott and Reich (2020) estimated that driver costs in Seattle are about 54 cents per mile for all drivers, very close to the IRS employee mileage expense reimbursement rate of 57.5 cents per mile.

I discuss first the driver pay findings in three Uber and Lyft studies and show how they change with a full accounting of work hours and driver expenses. I then turn to driver pay studies by scholars working independently of Uber and Lyft. Finally, I use data from Lyft's own passenger fare rate cards for Los Angeles, San Diego, San Francisco and Seattle to estimate net hourly driver pay in each of these four cities.

Uber and Lyft studies A study by Uber data analyst Alison Stein (2020) on price effects under employee status provides some insight on pay of Uber drivers in California. Stein's results imply that current statewide average driver pay, *before* expenses, is about $23 per hour.[2] Using an average speed of 22 miles an hour (reported by the California Air Resources Board), and the IRS-estimated cost of driving per mile (57.5 cents), Uber's own study implies average net hourly earnings of $10.65 an hour, well under the state minimum wage.

A Lyft-commissioned study by Tucker (2020) provides an estimate of driver pay in California. Using internal Lyft data, Tucker finds that Lyft driver earnings after expenses average around $20 per hour. However, Tucker's estimate does not account for drivers' waiting time or all of drivers' expenses. After adjusting for waiting time, Tucker's estimate falls to $13.40 an hour. Including expenses during waiting time and other expenses that were excluded from her analysis, Tucker's data also implies a net hourly wage that is well under the California minimum wage.

A study by Cornell University historian Louis Hyman et al. (2020)-- funded by Uber and Lyft-- estimates that drivers in Seattle average $16 an hour after expenses, close to the city's minimum wage of $16.39. This study counts only a portion of waiting time in workers' hours and estimates (p. 81 and 94) driver expenses at 19 cents per mile. Using more realistic assumptions, Hyman et al. find (p. 121) that 26 percent of full-time drivers

[2] To obtain this result, I undertake a number of intermediate calculations. I first use Stein's findings and reports from the California Air Resources Board and Fehr and Peers' report on Uber and Lyft vehicle miles traveled in California to estimate the statewide average price increase implied by Stein's data. I separately estimate that driver gross compensation in California would have to be at least $31 per hour to cover minimum wages, benefits, and full driving costs at 57.5 cents per mile. If Stein's price increase is due entirely to costs increases, I can then back out Stein's estimate of current gross driver pay and arrive at about $23 per hour.

earned less than the city's minimum wage of $16.39. After adjusting for all working time and all driver expenses, Hyman's data indicates Seattle drivers were paid on average less than the California minimum wage.

In another industry-funded study, Thornberg et al. (2020) simply assume that the Hyman et al. findings on driver earnings in Seattle apply to drivers in California. As I show below using company rate cards, this assumption is approximately correct for San Francisco—if adjusted by more realistic models of driver work hours and expenses-- but not for the rest of California. Thornberg's study thus does not provide any informative data for California.

Independent studies These are studies by economists and engineers neither affiliated with nor funded by Uber or Lyft. Mishel (2018) re-analyzes national data in an Uber study by Cook et al. (2018). After adjusting their data to be comparable to a wage received by an employee, Mishel finds that Uber paid their drivers less than $10 per hour. A study by Alejandro Henao (2017) of driver pay in Denver finds that full-time drivers there are also paid less than $10 per hour. Parrott and Reich (2020) use a survey of Seattle drivers and find that pay averages $9.73 per hour.

Importantly, earnings vary significantly among individual drivers. Parrott and Reich (2020)'s study for the City of Seattle finds a large variation in earnings per hour among drivers in a given week and for drivers as a group over the course of the year. Data on Seattle drivers provided by Uber show that average gross hourly earnings each month varied by 25 percent over the course of a single year (Parrott and Reich 2020, Exhibit 24). Our Seattle driver survey data also showed that driver gross earnings (before expenses) at the 5th percentile were only one-third of average driver pay. (Parrott and Reich 2020, Exhibit 25).

Evidence from company rate cards For recent evidence on driver pay levels in Seattle and in major California cities, I use Lyft's passenger rate cards. These rates are published online to help passengers estimate trip costs in difference cities. Since Lyft commission rates are very similar in all these cities, the card data reflect differences in what drivers get paid. While fares for a similar trip vary considerably among cities, fares charged by Uber and by Lyft within the same city are virtually identical. The results below for Lyft therefore also apply for Uber.

Table 1 shows Lyft's passenger rate cards for Los Angeles, San Diego, San Francisco and Seattle as well as fares for a typical trip of 7.5 miles and 30 minutes in each city. Table 1 shows that passenger fares for a typical half hour trip in these cities vary between $13.13 and $20.10. Fares are highest in San Francisco ($18.98) and Seattle ($20.10). They are considerably lower in Los Angeles ($13.13) and San Diego ($16.05). Thus, compared to Seattle, fares for a typical ride are 5 percent lower in San Francisco, 25 percent lower in San Diego and 35 percent lower in Los Angeles.

Table 1 Lyft fares in four cities

	Los Angeles	San Diego	San Francisco	Seattle
Initial cost	-	-	2.24	1.53
Service fee	2.80	3.15	2.70	2.00
Price per minute	0.17	0.31	0.40	0.27
Price per mile	1.07	0.90	0.93	1.60
Fare for a typical ride*	**$13.13**	**$16.05**	**$18.98**	**$20.10**

*Calculated from the rate cards for a 7.5 mile, 30 minute ride.
Sources:
https://www.lyft.com/pricing/lax;
https://www.lyft.com/pricing/san
https://www.lyft.com/pricing/sfo
https://www.lyft.com/pricing/SEA
httpsestimatefares.com;

This pattern of higher fares in San Francisco and Seattle than in Los Angeles and San Diego makes sense, for three reasons. First, San Francisco and Seattle both have local minimum wages that are well above $15 per hour and higher than in Los Angeles and San Diego. Second, San Francisco and Seattle have both experienced booming tech economies, which raised wages for many workers and may have spilled over on to the pay of drivers. Third, San Francisco and Seattle are denser cities, with more traffic congestion and slower traffic speeds.[3]

What do the rate cards tell us about driver pay in each city? To calculate driver pay I first subtract commissions from these fares to get driver pay per trip. I then account for the number of trips drivers complete per working hour to get gross driver pay per hour. Finally, a subtract all of the drivers' expenses to arrive at net pay per hour.

After subtracting the company's commission rates of 25 percent in each city, driver gross (before expenses) *pay per trip* varies between $9.72 and $15.07. Drivers have paid passengers in their vehicles about 50 percent of their working time in all of these cities. Drivers thus complete an average of one trip per hour. The driver's *gross pay per hour* then also varies between $9.72 and $15.07 among these cities.

[3] I consider the effects of density further below.

For expenses, I conservatively assume that the typical driver accumulates 2.5 miles of driving between trips in each of these cities. With our typical 7.5 mile passenger trip, the driver totals 10 miles of driving each hour. Using the IRS mileage expense reimbursement rate of 57.5 cents per mile, driving expenses per hour average $5.75.

Net hourly pay equals gross hourly pay minus expenses. In this example then, *net hourly pay* among these cities would vary between $3.97 per hour in Los Angeles and $9.22 in Seattle. These amounts are well below the applicable minimum wages in the four cities.

One might want to consider also that the Los Angeles and San Diego downtowns are much less congested than the downtowns of San Francisco and Seattle. As a result, Los Angeles and San Diego drivers might be able to spend more of their waiting time curbside, while San Francisco and Seattle drivers might have to keep cruising during more of their waiting time. In that case, we may have under-estimated expenses for San Francisco and Seattle drivers. This adjustment would only slightly raise net hourly pay in Los Angeles and slightly reduce net hourly pay in Seattle.[4] We would still find the same basic pattern of driver pay well below minimum wages in all these cities.

In summary, the evidence suggests that, when accounting fully for expenses and work time, a substantial share of drivers in California earn less than the equivalent of the state's minimum wage.

4. Why is pay for Uber and Lyft drivers so low?

In California and most cities, Uber and Lyft do not place restrictions on the number of qualified drivers in their systems, nor upon their work hours. As a result, at any moment and location there are considerably more drivers available for rides than passengers demanding rides. This competition for passengers makes the drivers willing to take fares that are not very remunerative for them. It also means that drivers wait in queues for ride requests. Such waiting time accounts for up to 30 percent of a driver's total work time. The low number of rides per hour then translates into low earnings per hour under Uber and Lyft's current per-ride compensation scheme.

This same dynamic—the high number of drivers relative to the number of passengers demanding rides—makes meaningless Uber's recent policy changes in California to provide drivers with some nominal control over prices. Drivers will compete for passengers over price, which will drive the price down to Uber's level. Uber's price is therefore both a

[4] With more traffic congestion, trips will take longer in San Francisco and Seattle, which would seem to increase driver pay. However, drivers would be able to complete fewer trips per work shift. The result is a wash.

floor and a ceiling. The granting of permission to drivers to set prices is substantively of no effect, as drivers have no pricing power, while Uber does.

A majority of part-time drivers (regularly working 20 to 32 hours per week) and full-time drivers (regularly working 32 or more hours per week) are people of color and without a college degree (Parrott and Reich 2018, 2020). These drivers have made substantial investments in their vehicles, which they cannot recoup if they leave driving. They are locked in to driving even though they could obtain minimum wage jobs in other industries. As a result, they must accept lower pay than they otherwise would.

Drivers also have incomplete information on the cost of driving for TNCs. The companies recruit drivers with promises concerning gross pay, while providing little information on the full costs of driving. The drivers themselves may be well aware of their daily fuel costs, but most likely have not calculated or factored in longer-term maintenance and depreciation costs. Many drivers live paycheck-to-paycheck and are more concerned with how to pay this month's rent, food, and health care bills than with expenses in the future (Federal Reserve Board 2019). The TNCs exploit these vulnerabilities. Employee status would protect the drivers from such exploitation.

5. Driver hours, number of jobs and compensation with employee status

Hours Tucker (2020) refers to the "quasi-fixed" non-wage costs of labor associated with employees, suggesting that incurring these costs would harm the companies and make the costs of hiring part-time workers more burdensome. Tucker substantially overstates her case. Many of these non-wage labor costs concern the expense of recruiting, training, and retaining a skilled workforce. However, Tucker cites the costs that apply for the entire workforce, including skilled professionals. These costs are much smaller among low-paid workers. And these costs do not deter other firms from employing part-time workers.

Uber and Lyft irrationally claim that employee status would lead to rigid 40-hour schedules for all their drivers, thereby removing work opportunities for their large segment of part-time drivers. But if drivers are treated as employees, the companies would still match the supply of drivers with the demand for rides. Other employers do such matching routinely. Uber and Lyft will still need to balance their workforce supply with the very large differences in passenger demand between off-peak hours, such as late nights and mornings, with the peak demand hours, such as late afternoons, early evenings, and weekend evenings (Chen et al. 2020). As a result, they would continue to need a large segment of part-time workers who are available during peak hours.

California employment law does not limit the ability of the companies to maintain flexible schedules for their drivers. To the degree that the drivers value flexibility in choosing to drive for Uber and Lyft, the companies would be best served to continue to provide such flexibility.

Number of jobs Uber cites two sources that purport to show a significant loss of employment opportunities if drivers had employee status. Uber's data analyst Alison Stein (2020) argues that 75 percent of drivers "would likely" lose access under an employment model. This claim rests on an assertion by Uber that "under an employment model it is likely that the new norm for Uber drivers would conform with the 40-hour work week which is the standard for full time U.S. employees." (Stein 2020). It may be arithmetically true that if all of Uber's work was consolidated into 40-hour employees the number of individuals working for the company would decline sharply. But it would be economically irrational for the companies to do so in an industry where the demand for services is highly variable. There should be no legitimate expectation that the TNCs will adopt a 40-hour per week employment model should they be required to directly hire their drivers.

Compensation If TNC drivers were treated as employees, their gross compensation would increase because all drivers would be paid at least the minimum wage, they would receive at least all mandated benefits, and their expenses would be reimbursed at the IRS rate. Adding these together, I estimate that gross earnings would equal as much as $31 per hour in California.

This estimate includes compensation for time and expenses during waiting time. It uses the IRS rate to evaluate expenses per mile, and it uses Uber and Lyft data provided to CARB on Uber and Lyft vehicle speeds to convert mileage expenses into expenses per hour (CARB (2019). The gross earnings is about 36 percent higher than Stein's implied estimate of current gross pay for Uber drivers.

Variation in driver pay and effects on driver flexibility I draw on the detailed Koustas-Parrott-Reich driver and trip dataset for New York City to discuss the implication of an increase in minimum driver pay per hour. Our detailed data indicate that many part-time drivers work when demand is greatest, such as the weekday afternoon/evening rush hour and on weekend nights. These are also the periods when the pay standard is not binding, in the sense that drivers already get more trips per hour and are able to earn more per hour. The off-peak weekend and weekday mid-day hours provide fewer rides per hour and therefore lower hourly earnings (Koustas, Parrott and Reich 2020).

Employee status, with a minimum wage for every hour worked, would thus have a greater effect on pay during these off-peak hours. Many part-time and casual drivers, especially those with family responsibilities on nights and weekend evenings, will benefit the most from employee status.

6. Fares, passenger demand and company profits

A full analysis of the effects of employee status on demand for drivers should take into account not only the change in labor costs, but also the various non-price channels through

which firms would absorb higher labor costs. Taking these into account, I estimate the impact of employee status on price increases, and the effect of higher prices on consumer demand and company profits. I will consider these in turn.

6.1. How the companies would absorb increased labor costs

In February 2019 New York City instituted a minimum driver pay standard on app-based companies. It also implemented a $2.50 per trip congestion fee on app-based trips in midtown Manhattan. The pay standard included an incentive for companies to make more use of their existing driver work force. A research team consisting Dmitri Koustas of the University of Chicago, James Parrott of the New School and myself have studied how the app-based transportation companies have responded to these policies. We have done so using confidential data, provided to us by the New York City Taxi and Limousine Commission, on a half billion trips in the city between 2017 and 2019 (Koustas, Parrott and Reich 2020).

Our findings indicate that Uber and Lyft can absorb a substantial proportion of the labor cost increases through increased utilization of their drivers, through reduction in trip times because of reduced traffic congestion, and through reductions in driver turnover costs. They also have ample ability to reduce their commissions (i.e., the fees they collect from each ride), which now average about 25 percent of fares.

Increased utilization. With Uber and Lyft drivers as employees, the companies will have a strong incentive to better manage their drivers' time and vehicles. Based on the effects of a smaller increase in compensation in New York City, I conservatively estimate that driver time with passengers in their vehicles would increase from 48 to 58 percent (Parrott and Reich 2018). This improved efficiency would increase driver rides per hour by 21 percent and absorb 25 percent of the increase in labor costs.[5]

Reduction in trip times. With employee status, there will be fewer TNC vehicles on roads, which means that there will be less congestion and that TNC drivers can complete their trips in a shorter time. An analysis by the San Francisco Transit Authority suggests average

[5] In an independent contractor regime, drivers are not reimbursed for time and expenses during P1. In an employee status regime, companies must pay P1 time and expenses. They therefore have a substantial incentive to reduce P1. Based on the effects of a smaller increase in compensation in NYC, we conservatively estimate that P1 time in California will fall from 34 to 24 percent, while time with a passenger in the vehicle (P3) will increase from 48 to 58 percent. This improved efficiency will increase driver rides per hour by 21 percent and absorb one-fourth of the 64 percent increase in labor costs. By comparison, Parrott and Reich (2018) estimated that increased utilization would absorb about 50 percent of the increase in labor costs due to a pay standard in New York City.

speeds for all vehicles would increase by about 3 percent, which means drivers will be able to obtain more paid trips per hour.[6]

Reduced turnover. Improved pay and benefits would lead to lower employee turnover. Tucker assumes that the "quasi-fixed" costs of hiring and retaining TNC drivers is the same as the average in the whole workforce, even though such costs increase substantially with the level of employee pay. I assume instead that intake costs (screening for safety records, criminal checks, plus inspection and onboarding of driver vehicles) are slightly lower than those in other low-wage industries. For my calculations here, I conservatively estimate that reduced turnover will absorb 12 percent of the increase in compensation for TNC drivers.[7]

Reduced commission rates. Commission rates amount to approximately 25 percent of fares. These rates are much higher than competitive rates in comparable industries, reflecting market power in price and wage-setting when there are only two companies in an industry.[8] To avoid some of the reduction in demand when prices increase, companies would lower their commission rates somewhat as a trade-off against a lower volume of commissions because of reduced demand. This adjustment could reduce commission rates from 25 percent to 22.5 percent. I use this amount in my estimate of how much prices would increase.

Larger commission reductions might occur because of public pressure and heightened driver concerns about fairness. Multiple cities, including Los Angeles and San Francisco, have already capped commission rates at 15 percent for restaurant meal delivery companies, including UberEats, GrubHub, and others (Elliott 2020). These companies

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[6] Estimated savings are based on the San Francisco Transportation Authority (2018) study of how TNC vehicle growth between 2010 and 2016 added to congestion and reduced traffic speeds in both congested and uncongested sections of San Francisco.

[7] TNCs will improve utilization by reducing new driver intake substantially, as happened in NYC, and fewer drivers will exit. We assume that intake costs (screening for safety records, criminal checks, plus inspection and onboarding of driver vehicles) are slightly lower than those in other low-wage industries. Dube, Lester, and Reich (2016) found that minimum wage increases reduced quit rates especially among low-tenure workers. I use their estimate of turnover rate reductions and Dube, Freeman and Reich (2010)'s estimates of turnover costs for low-wage workers. In my previous research, I estimated that reduced turnover costs offset 15 percent of the costs of minimum wage increases. For my calculations here, I conservatively assume that reduced turnover will absorb 12 percent of the increase in compensation for Uber and Lyft drivers.

[8] A competitive commission rate for a multi-sided platform industry would be 2-3 percent. These are the fees charged by credit card payments systems, which have more players —Visa, MasterCard, Discover, Square, Venmo, etc. When demand is inelastic, but not perfectly so, profit-maximizing companies lower their commission rates somewhat as a trade-off against a lower volume of commissions because of reduced demand. I estimate that this reduction would be about 2.5 percent. I use this amount in our estimates.

continue to be active in the business of meal delivery, despite the reduction of commissions from 30 percent to 15 percent.

Based upon the data provided by Uber and Lyft, and adding up each of the major channels through which companies can absorb increases in their compensation costs, I estimate that Uber and Lyft's fares would increase about 5 to 10 percent with reclassification to employee status.

6.2 Effects of price increases on passenger demand and driver work hours

Economists refer to the responsiveness of passenger demand to changes in price as the price elasticity of demand, or more simply as the demand elasticity. It is defined more precisely as the percent decline in quantity demanded when prices increase one percent. An elasticity of less than one means demand is relatively unresponsive, or inelastic. An elasticity of greater than one means that demand is elastic. Three different studies, each using internal Uber data, have estimated Uber passenger demand elasticity. Cohen et al. (2016) estimate Uber demand elasticities for a large number of metro areas. Their average demand elasticity is .45. Their estimated elasticities for San Francisco and Los Angeles are .52 and .35, respectively. Castillo (2020) estimates a demand elasticity for Houston of .19. In the most sophisticated of the three studies, Hall, Horton, and Knoepfle (2020) estimate a national demand elasticity of .25.[9] These studies imply the passenger demand elasticity in California is 0.2.[10]

A price increase of 5 to 10 percent with employee status and a passenger demand elasticity of 0.2 together imply that the number of rides would decrease about 1-2 percent. A 2 percent decrease in the number of rides translates into a similar decrease in aggregate driver hours. However, with individual driver hourly compensation increasing by 35 percent, a reduction of 2 percent in hours still yields a 33 percent increase in total driver compensation in an employee status model.

A recent company-funded study (Lewin et al. 2020) draws on an early demand elasticity estimate by Parrott and Reich (2018) of 1.2 for New York City. However, that estimate was based on the outer boroughs and not on core Manhattan. And that estimate was not based

[9] Passenger demand is more elastic in cities with major mass transit systems, such as New York City and San Francisco. As Hall, Horton and Knoepfle show, their estimation method is superior to that of Cohen et al. in taking into account how higher prices will generate more TNC vehicles on the road, which reduces wait times for passengers. The reduced wait times then counteract some of the negative effects of higher prices on demand. This additional adjustment mechanism explains why Hall, Horton, and Knoepfle's elasticity is much lower than that of Cohen et al.

[10] I obtain this estimate after adjusting Cohen's elasticities for San Francisco and Los Angeles for the correction factor implied by Hall, Horton, and Knoepfle and then applying Uber and Lyft vehicle miles traveled in each metro area to compute a weighted average for the state. Note that emand elasticities are independent of whether drivers are independent contractors or employees.

on a causal analysis and in any case is not relevant for California. Surprisingly, Lewin et al. ignore, or are ignorant of, the much lower demand elasticities estimated in recent Uber papers. If they had used a demand elasticity for California of 0.2, their prediction of disaster for the industry under an employee model would totally disappear.

In conclusion, reclassifying drivers as employees is likely to result in a modest increase in consumer prices, a small reduction in aggregate driver work hours, and a large increase in aggregate driver compensation.

6.3 Company revenue and profits

As previously discussed, labor costs will increase about 36 percent per hour. About two-thirds of that increase will be absorbed by increased utilization of drivers, reduced turnover costs, reduced trip times, and small reductions in commission rates. At the high end of my analysis, prices would increase 10 percent, causing only a 2 percent reduction in rides.

Revenue. The 10 percent increase in prices and 2 percent decline in the number of rides imply that aggregate revenue would increase by 8 percent (10 percent increase in revenue per ride less the 2 percent decrease in the number of rides). The costs of software management, advertising, public and government relations, and legal costs are mainly fixed costs that would not change. Variable non-driver costs per driver, such as on-boarding and management of labor, would increase only slightly.

Aggregate profits from commissions. Aggregate profits received as commissions, and net of small increases in non-driver expenses, would *increase* by close to 8 percent, even with a drop in commission rates from 25 percent to 22.5 percent. A reduction in commission rates from 25 percent to 15 percent would produce a smaller but nonetheless still substantial increase in aggregate commissions.

It may seem counterintuitive that a reduction in commission rates is consistent with a growth in the value of aggregate commissions. The solution to this apparent puzzle lies in the relative unresponsiveness of passenger demand to price increases. The growth in aggregate commission occurs because the increase in prices is much greater than the reduction in the number of rides.

Note that each company acting by itself cannot increase prices to achieve increased commissions, as it would lose market share by doing so. A mandated increase in costs, however, would create a market-coordinated process (Varian 2014, ch. 29, “Games of Coordination,” pp. 542ff.) that would generate similar price increases for both companies.

7. Conclusion

A large share of TNC drivers in California earn less than the minimum wage when expenses are taken fully into account. If Proposition 22 fails and the companies were to treat drivers as employees, the result would be a modest increase in fares, a small decline in demand, a small increase in company revenues, and a one-third increase in total driver compensation. All drivers would benefit; part-time and casual drivers who want to work mid-day on weekdays would receive the biggest benefits.

References

California Air Resources Board 2019. "SB 1014—2018 Base-year Emissions Inventory Report." December. https://ww2.arb.ca.gov/sites/default/files/2019-12/SB%201014%20-%20Base%20year%20Emissions%20Inventory_December_2019.pdf

Castillo, Juan Camillo 2020. "Who Benefits from Surge Pricing" (Job Market Paper). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3245533

Chen, Keith et al. 2019. "The Value of Flexible Work: Evidence from Uber Drivers.' *Journal of Political Economy* 127, 6: 2735-94. https://www.journals.uchicago.edu/doi/abs/10.1086/702171?af=R&mobileUi=0

Collins, Brett, Andrew Garin, Emilie Jackson, Dmitri Koustas, and Mark Payne 2019. "Is Gig Work Replacing Traditional Employment? SOI Working Paper. https://www.irs.gov/pub/irs-soi/19rpgigworkreplacingtraditionalemployment.pdf

Cook, Cody, Rebecca Diamond, Jonathan Hall, John A. List, and Paul Oyer. "The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers." Stanford University, May 2020. https://web.stanford.edu/~diamondr/UberPayGap.pdf

Dube, Arindrajit, Eric Freeman, and Michael Reich 2010. "Employee Replacement Costs." IRLE Working Paper 201-10. https://escholarship.org/content/qt7kc29981/qt7kc29981.pdf

Dube, Arindrajit, William Lester, and Michael Reich 2016. "Minimum Wage Shocks, Employment Flows, and Labor Market Frictions." *Journal of Labor Economics* 34, 3: 663-704. https://www.journals.uchicago.edu/doi/abs/10.1086/685449?mobileUi=0&journalCode=jole

Elliott, Farley 2020. "LA City Council's 15 Percent Food Delivery Fee Cap is About to Take Effect." *LA Eater*. June 4, 2020. https://la.eater.com/2020/6/4/21280511/morning-briefing-restaurant-news-los-angeles-delivery-fee-cap-15-percent-approved

Federal Reserve Board 2019. "Report on the Economic Well-Being of U.S. Households in 2018." Washington D.C. https://www.federalreserve.gov/publications/files/2018-report-economic-well-being-us-households-201905.pdf

Farrell, Diana, Fiona Greig, and Amar Hamoudi. 2019 "The Online Platform Economy in 2018." JPMorganChaseInstitute https://www.jpmorganchase.com/corporate/institute/document/institute-ope-2018.pdf

Fehr and Peers 2019. “What are TNCs Share of VMT?” https://www.fehrandpeers.com/what-are-tncs-share-of-vmt/

Hall, Jonathan, John Horton, and Daniel Knoepfle 2020. “Ride-sharing Markets Re-Equilibrate.” https://john-joseph-horton.com/papers/uber_price.pdf

Hall, Jonathan and Alan Krueger 2018. “An Analysis of the Labor Market for Uber’s Partner-Drivers.” *ILR Review* 71, 3: pp. 705-32. https://doi.org/10.1177/0019793917717222

Henao, Alejandro 2017. “Impacts of Ridesourcing—Lyft and Uber—on Transportation.” Ph.D. Thesis, University of Colorado. http://digital.auraria.edu/content/AA/00/00/60/55/00001/Henao_ucdenver_0765D_10823.pdf

Hyman, Louis et al. 2020, “Platform Driving in Seattle.” Institute for Workplace Studies, Cornell University. https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1070&context=reports

Jacobs, Ken and Michael Reich 2019. “The Uber/Lyft Ballot Initiative Guarantees Only $5.64 per Hour.” Labor Center and CWED Policy Brief. UC Berkeley. https://laborcenter.berkeley.edu/the-uber-lyft-ballot-initiative-guarantees-only-5-64-an-hour-2/

Jacobs, Ken and Michael Reich 2020. “The Effects of Proposition 22 on Driver Earnings: Response to a Lyft-Funded Study by Dr. Christopher Thornberg.” Labor Center and CWED Policy Brief, UC Berkeley. https://laborcenter.berkeley.edu/wp-content/uploads/2020/08/Response-to-Thornberg.pdf

Koustas, Dmitri, James Parrott and Michael Reich 2020. “Effects of New York City’s Driver Pay Standard.” Working paper, forthcoming October.

Lewin, David, William Hamm and Mia Kim 2020a. Analysis of Driver Job Losses if Gig Economy Companies Must Re-Classify Drivers as Employees Rather Than Independent Contractors, BERKELEY RESEARCH GRP. . https://voteyesprop22.com/wp-content/uploads/2020/05/BRG-REPORT-JOB-LOSS-SUMMARY-MAY-14-2020_FINAL.pdf

Lewin, David, William Hamm and Mia Kim 2020b. “How will Reclassification of App-Based Drivers as “Employees,” Rather than “Independent Contractors,” Affect Consumers in California.” https://yeson22.com/wp-content/uploads/2020/09/BRG-MINI-REPORT-CONSUMER-IMPACT_Final.pdf

Lyft 2020. “Lyft’s Opposition to Motion for Preliminary Injunction.” August 6. Filed with San Francisco Superior Court. (Case no. CGC-20-584402).

Mishel, Lawrence 2018. *Uber and the Labor Market*. EPI Report May 15, 2018 https://files.epi.org/pdf/145552.pdf

Parrott, James, and Michael Reich 2018. *An Earnings Standard for New York City’s App-based Drivers: Economic Analysis and Policy Assessment*. UC Berkeley Center on Wage and Employment Dynamics. July 2018. https://irle.berkeley.edu/an-earnings-standard-for-new-york-citys-app-based-drivers/

Parrott, James, and Michael Reich 2020. *A Minimum Compensation Standard for Seattle TNC Drivers.* UC Berkeley Center on Wage and Employment Dynamics. July 2020.

Rosenblat, Alex 2018. *Uberland: How Algorithms are Rewriting the Rules of Work*. University of California Press.

San Francisco County Transportation Authority 2018. “TNC's and Congestion.” October 2018. https://www.sfcta.org/sites/default/files/2019-05/TNCs_Congestion_Report_181015_Finals.pdf

Scheiber, Noam 2020 July 12. “When Scholars Collaborate with Tech Companies, How Reliable are the Findings?” *New York Times*. July 12. https://www.nytimes.com/2020/07/12/business/economy/uber-lyft-drivers-wages.html

Stein, Alison 2019. “Unpacking Pay Standards: a Response to the UC Berkeley Labor Center.” November 7, 2019. https://medium.com/uber-under-the-hood/unpacking-pay-standards-a-response-to-the-uc-berkeley-labor-center-aa5549871040

Stein, Alison 2020. “Analysis on Impacts of Driver Reclassification.” Medium May 28, 2020 https://medium.com/uber-under-the-hood/analysis-on-impacts-of-driver-reclassification-2f2639a7f902

Thornberg, Christopher et al. 2020. “Prop 22: Analyzing the Impact on App-Based Driver Earnings.” Center for Economic Forecasting and Development, School of Business, UC Riverside. https://ucreconomicforecast.org/wp-content/uploads/2020/08/Prop22_Driver_Earnings_Analysis_August2020.pdf

Tucker, Catherine 2020.”Declaration of Dr. Catherine Tucker in Support of Lyft Inc.’s Opposition to Plaintiff’s Motion for Preliminary Injunction.” August 6. Filed with San Francisco Superior Court. (Case no. CGC-20-584402).

Uber 2020. “Defendant Uber Technologies, Inc.’s Opposition to Motion for Preliminary Injunction.” Submitted to San Francisco Superior Court, August 6, 2020. (Case no. CGC-20-584402).

Varian, Hal 2014. *Intermediate Microeeconomics: A Modern Approach.* Eighth edition. W.W. Norton.