

ECONOMICS OF FLEXIBLE WORK SCHEDULES IN THE APP-BASED ECONOMY

Kathryn Shaw*

Stanford University Graduate School of Business

Stanford Institute for Economic Policy Research

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Abstract. I evaluate the economic impact of a proposed reclassification of app-based economy workers from independent contractors to employees. Such a reclassification would impose additional regulations and costs to engaging these workers. The ability of app-based economy companies to offer workers the fully-flexible schedules that are currently available to independent contractors, allowing them to work when and where they want with essentially no limitations, would be substantially reduced. A range of evidence indicates that workers earning on these platforms place a significant value on scheduling flexibility and therefore, that reclassification as employees would lead to a loss in value to workers.

* Ernest C. Arbuckle Professor of Economics, Graduate School of Business, Stanford University, Stanford CA 94305-5015, kathryns@stanford.edu. This research was commissioned and financed by Flexibility and Benefits for Massachusetts Drivers, and I was assisted in preparing this report by staff at Compass Lexecon. The views expressed in this study are my own and not those of Stanford University or Compass Lexecon.

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I. Executive Summary

I am Kathryn Shaw, a labor economist and the Ernest C. Arbuckle Professor of Economics at the Graduate School of Business at Stanford University. A summary of my background and qualifications can be found in Section V of this report.

Over the last decade or more, several companies in the technology industry have, under an independent contractor model, enabled workers to have fully flexible work schedules. I refer to this as the “app-based economy.” Uber, Lyft, DoorDash, and Instacart are four such companies in the app-based economy that enable workers to have fully flexible work schedules under an independent contractor model.

Work with companies like these, sometimes known as the “gig” economy, has become more popular over time. A 2019 study by MasterCard estimated global gig economy revenue of \$204 billion, with \$118 billion of that attributable to driving- or delivery-related apps such as Uber, Lyft, DoorDash, and Instacart.¹

An August 2020 survey by the Pew Research Center found that 16% of U.S. adults have worked in the app-based economy, including 7% making deliveries from a restaurant or store, 5% driving with a ride-hailing app, and 4% shopping for or delivering groceries or household items.² The share that has worked in the app-based economy is higher for Black (20%) and Hispanic (30%) people.³

The share of workers in the app-based economy increased by 15% between 2010 and 2019, according to a 2020 study by payroll company ADP.⁴ A 2019 analysis of Chase bank account data found that payments from the category of apps that included rideshare and delivery services constituted more than 95% of all payments made to account holders by app-based economy companies.⁵ Moreover, most of the growth in recent years in app-based economy work has been with rideshare platforms that are increasingly popular with drivers; a recent academic study explained, “[a]t this point, there is only one sector—passenger transportation services—in which all of the available evidence points to a dramatic shift in the nature of work attributable to gig activity. The changes in passenger transportation have been associated with significant shifts in worker demographics (e.g., drivers who are more likely to be young and female) and workers

¹ Other gig economy sectors include asset-sharing services like Airbnb and household services like care.com. Mastercard and Kaiser Associates, “The Global Gig Economy: Capitalizing on a ~\$500B Opportunity,” May 2019.

² Pew Research Center, “The State of Gig Work in 2021,” December 8, 2021, at p. 4.

³ *Id.*

⁴ ADP, “ADP Research Institute Report Reveals the Gig Workforce is Filling a Void in the Tight Labor Market,” February 4, 2020, at p. 3.

⁵ Diana Farrell, Fiona Greig, and Amar Hamoudi (2019) “The Evolution of the Online Platform Economy: Evidence from Five Years of Banking Data,” *American Economic Review Papers and Proceedings* 109:362-366, at p. 363.

appear to be taking advantage of the opportunity to drive on a flexible basis to supplement income from other sources.”⁶

Typically, workers that provide services in the app-based economy are classified as independent contractors. In Massachusetts and other states, legislation has been passed and litigation brought that seeks to force companies to reclassify these workers as employees and be subject to various state and federal regulations.

I was asked by Flexibility and Benefits for Massachusetts Drivers, a coalition comprised of Uber, Lyft, DoorDash, and Instacart to evaluate, from an economic perspective, the potential effects of a proposal to require these workers to be classified as employees instead of as independent contractors. Based on my review of the relevant economic theory, academic literature, and market data,⁷ I conclude that the available evidence is consistent with economic theory indicating that reclassifying app-based economy workers as employees is likely to lead to significantly reduced scheduling flexibility, to the detriment of workers who often value this flexibility greatly. This follows from economic theory and empirical evidence supporting the following:

- If independent contractors were reclassified as employees, app-based economy firms would likely be forced to reduce or eliminate much of the scheduling flexibility currently available to workers.
- Economic theory and empirical evidence demonstrate that flexible work schedules provide value to workers, particularly those in the app-based economy. Empirical studies find that the ability to set one’s own schedule is the equivalent of an approximately 9% increase in wages.
- Under an employment model, hours would likely be chosen partly or wholly by companies, and potentially on short notice, an outcome workers typically dislike and find harmful.

This economic evidence is also consistent with available surveys of app-based economy workers. These workers consistently indicate that scheduling flexibility is one of the primary aspects of the job they value. For instance, in two surveys of more than 600 drivers on the Uber platform taken in December 2014 and November 2015, 87% of drivers stated that they signed up to drive with Uber in part “to be my own boss and set my own schedule, and 85% indicated “to have

⁶ Katharine G. Abraham, John Haltiwanger, Kristin Sandusky, and James Spletzer (2019) “The Rise of the Gig Economy: Fact or Fiction?” *American Economic Review Papers and Proceedings* 109:357-361, at p. 360.

⁷ Company data were provided by DoorDash, Instacart, Lyft, and Uber. Staff at Compass Lexecon and I had independent access to, and full discretion in analyzing, these data. We worked with each company individually to establish uniform data definitions for the purposes of this report, but none of the four companies had access to data from the other companies at any time. This report was commissioned by Flexibility and Benefits for Massachusetts Drivers.

more flexibility in my schedule and balance my work with my life and family.”⁸ Nearly one-third (32%) of drivers indicated “to earn money while looking for a steady, full-time job.”⁹

In the remainder of this study, I summarize the bases for my conclusions. In Section II, I summarize the evidence that workers place substantial value on scheduling flexibility. In Section III, I focus specifically on app-based work, and conclude that scheduling flexibility is a key amenity in this sector and generates substantial value for workers. In Section IV, I explain why worker flexibility would likely be substantially reduced or eliminated if workers in the app-based economy were reclassified as employees. Section V summarizes my qualifications as an economist.

II. Workers Place Substantial Value on Flexible Work Scheduling

A. Flexible Scheduling is Recognized as Providing Valuable Benefits to Workers

Workers generally value flexibility in setting their own hours, and dislike employer-determined hours. Because, as I discuss later in this report, a reclassification of app-based workers from independent contractors to employees is likely to lead to reduced flexibility, reclassification can eliminate an important source of value.

Workers value flexibility for many reasons. For instance, many jobs offer a constrained number of hours (such as 40 hours per week), and workers who hold such jobs as their primary source of income may, at times, wish to work additional hours;¹⁰ a second opportunity for earnings with flexible hours allows them to do so. Control over schedules and how many hours worked may also allow workers to better balance family or other non-work responsibilities such as schooling. Workers who are between jobs can also take advantage of flexible hours to continue earning while seeking other work.¹¹

Moreover, workers can use scheduling flexibility to increase or decrease the number of hours worked to meet unexpected costs, such as medical or car repair bills, if they do not have (or do not wish to access) savings. The President’s Council of Economic Advisers wrote in a 2010

⁸ Jonathan V. Hall and Alan B. Kruger (2018) “An Analysis of the Labor Market for Uber’s Driver-Partners in the United States,” *ILR Review* 71:705-732, at p. 713.

⁹ *Id.*, at p. 714.

¹⁰ Keith A Bender and John Douglas Skatun (2009) “Constrained by Hours and Restricted in Wages: The Quality of Matches in the Labor Market,” *Economic Inquiry* 47(3):512-529.

¹¹ For instance, a September 2021 survey of 1,508 app-based economy drivers in California found that 57% stated that rideshare or delivery work had replaced income lost due to the COVID-19 pandemic. EMC Research, “California App-Based Rideshare & Delivery Driver Survey,” September 2021, at p. 19. Evidence indicates that workers have higher productivity in job search if they are currently working. R. Jason Faberman, Andreas I. Mueller, Aysegul Sahin, and Georgio Topa (2017) “Job Search Behavior among the Employed and Non-Employed,” NBER Working Paper 23731, at p. 23 (“The employed are now four times more efficient than the unemployed at job search ... Therefore, using our data to gain a proper estimate of relative search efficiency shows that the unemployed have an incentive to accept low wage offers, since, once employed, they will be able to search more efficiently while on the job and therefore move up the job ladder more quickly to better job offers.”).

public report, “[W]orkers who have little workplace flexibility require higher wages to help pay for services such as emergency child care and elder care.”¹² In addition, flexibility may also reduce stress and allow for greater productivity and lower disutility of work for those who prefer non-standard hours.

Some evidence indicates workers with greater control over their hours experience better health.¹³ An analysis of survey responses from U.S. workers in the food and retail industries concluded that “[t]he evidence is strong and consistent in connecting scheduling practices—including short notice of work schedules, irregular work schedules and hours, canceled shifts, and on-call shifts—to psychological distress, worse sleep quality, and unhappiness.”¹⁴

Thus, scheduling flexibility can be viewed as a work amenity or “fringe benefit.” Economic theory recognizes that amenities are a form of compensation and that workers make labor market decisions based on their total compensation package, including both monetary earnings and non-monetary amenities, such as flexibility. Put differently, a reduction in flexibility is a reduction in compensation, just like a reduction in earnings. I discuss the available empirical evidence quantifying the value of flexibility in dollars later in this report.

B. Survey Evidence Indicates that Workers Place Significant Value on Flexibility

Surveys consistently find that workers place significant value on scheduling flexibility. For instance, a February 2020 Deloitte survey of white-collar professionals in the U.S. found that 94% of respondents said they would benefit from work flexibility.¹⁵ Of the reasons those respondents indicated they would benefit from flexibility, 43% cited reduced stress or better mental health, 38% better work-life integration, 33% increased job satisfaction or morale, and 29% increased productivity or efficiency at work.¹⁶

¹² Council of Economic Advisers (2010) “Work-Life Balance and the Economics of Workplace Flexibility,” at p. 16.

¹³ L Ala-Mursula, J Vahtera, M Kivimaki, M V Kevin, and J Pentti (2002) “Employee control over working times: associations with subjective health and sickness absences,” *Journal of Epidemiology and Community Health* 56:272-278, at p. 275 (“In women, level of worktime control was consistently associated with subjective health. Odds ratios for poor health and psychological distress were twice as high among those in the lowest quartile of worktime control than those in the highest (table 3). In men, worktime control did not associate with poor health or psychological distress in the adjusted models. In both men and women, employees in the two lowest quartiles of worktime control had a 1.2 times higher rate of medically certified sickness absences than those in the highest quartile, after adjustment for age, educational level, family characteristics, and traditional health risk behaviour. The association between worktime control and forthcoming sickness absence remained significant in women even after the adjustment for prior sickness absence.”).

¹⁴ Daniel Schneider and Kristen Harknett (2019) “Consequences of Routine Work-Schedule Instability for Worker Health and Well-Being,” *American Sociological Review* 84(1):82-114, at p. 107.

¹⁵ Deloitte, “Deloitte Survey: Most Professionals Take Advantage of Flexible Work Options Despite Perceived Consequences to Professional Growth,” February 20, 2020.

¹⁶ *Id.*

A December 2020 survey of 2,000 workers in large corporations and mid-market businesses in the U.S. found that 88% said that, when searching for a new position, they would look for one that offers flexibility in their hours and location.¹⁷

A June-July 2021 survey of 1,584 full-time U.S. workers found that 79% wanted flexibility in when and where they work, and 51% would give up 10% to 20% of a future increase in salary to have such flexibility.¹⁸

A November 2021 survey of 10,737 knowledge workers in the U.S., Australia, France, Germany, Japan, and the U.K. found that 95% of respondents valued schedule flexibility.¹⁹

C. Empirical Studies of Labor Market Behavior Indicate that Workers Place Significant Value on Flexibility

Formal empirical evidence is consistent with these surveys. For instance, a 2017 article in the *American Economic Review* reported on a field experiment in which approximately 7,000 job applicants to a real call center were asked to choose between (i) standard Monday-Friday 9 a.m.-5 p.m. hours, (ii) flexible hours chosen by the employee, and (iii) an employer-selected schedule that could vary from week to week.²⁰ The different options came with different wages attached.

The authors concluded, based on the applicants' actual choices for their preferred hours as they apply for jobs, that many workers place a high value on flexibility, stating, "the top 25 percent of workers – those workers with a WTP [willingness-to-pay] in the top 25 percent of the WTP distribution – are willing to give up at least 10 percent of their wages to be able to make their own schedule."²¹ At the same time, applicants showed a "strong aversion to jobs that permit employer discretion in scheduling: the average applicant is willing to take a 20 percent wage cut to avoid these jobs, and almost 40 percent of applicants would not take this job even if it paid 25 percent more than a M-F 9 AM - 5 PM position."²²

¹⁷ Citrix, "Citrix Uncovers What Employees Really Want in 2021," press release, December 9, 2020, <https://www.bloomberg.com/press-releases/2020-12-09/citrix-uncovers-what-employees-really-want-in-2021>.

¹⁸ Grant Thornton, "Assessing the state of American workers," September 30, 2021, <https://www.granthornton.com/library/articles/tax/2021/assessing-the-state-of-american-workers.aspx>.

¹⁹ Future Forum Pulse, January 25, 2022, at pp. 3-4. The survey focused on "knowledge workers," defined as "employed full-time (30 or more hours per week) and either having one of the roles listed below or saying they 'work with data, analyze information or think creatively': Executive Management (e.g., President/Partner, CEO, CFO, C-suite), Senior Management (e.g., Executive VP, Senior VP), Middle Management (e.g., Department/Group Manager, VP), Junior Management (e.g., Manager, Team Leader), Senior Staff (i.e., Non-Management), Skilled Office Worker (e.g., Analyst, Graphic Designer)." *Id.*, at p. 19.

²⁰ Alexandre Mas and Amanda Pallais (2017) "Valuing Alternative Work Arrangements," *American Economic Review* 107(12):3722-3759. See also Luci Flabbi and Andrea Moro (2012) "The effect of job flexibility on female labor market outcomes: estimates from a search and bargaining model," *Journal of Econometrics* 168:81-95, at p. 81 ("Results show that more than one-third of women place a small, positive value on flexibility.").

²¹ *Id.*, at p. 3738.

²² *Id.*, at p. 3726.

In a different study, a nationally-representative survey conducted during 2015 and 2016 asked respondents to select between two hypothetical jobs with different combinations of monetary compensation and job amenities, including hourly flexibility.²³ The study found that approximately 40% of respondents selected a lower-wage job with a flexible work schedule and telecommuting over a higher-wage job without those attributes, consistent with a conclusion that workers place a significant value on flexibility.²⁴ The respondents' answers to these questions imply that "setting one's own schedule is equivalent to a 9.0% wage increase."²⁵

In a February 2018 field experiment, the authors of another study posted various job openings on a Chinese online job board specifying different rates of pay and hourly flexibility.²⁶ Observing the response rates to the different jobs, they conclude that "within each salary level, the application rate is higher in the treatments [job opening ads] with job flexibility," and that job-seekers value flexibility as much as a significant increase in salary.²⁷

D. Empirical Evidence Indicates that Women with Children Often Value Flexibility More Highly

Flexible hours are recognized as particularly valuable for those balancing work and family obligations, such as mothers of young children. As a study published in the U.S. Bureau of Labor Statistics' journal *Monthly Labor Review* explained, "[i]t seems clear why women, at least, desire flextime benefits as they pursue careers and families. Even women who are employed full time spend 20 to 30 hours per week on housework; employed men spend at most half that time."²⁸ The study found that flexible hours particularly increased female workers' productivity and wages.²⁹ Another study found that women returning to the labor force after maternity leave

²³ Nicole Maestas, Kathleen J. Mullen, David Powell, Till Von Wachter, and Jeffrey B. Wenger (2018) "The Value of Working Conditions in the United States and Implications for the Structure of Wages," NBER Working Paper 25204, at p. 8 (describing the "American Working Conditions Survey," implemented in two waves: July-October 2015 and December 2015-February 2016, and indicating 1,815 working respondents, demographically weighted to match the U.S. labor force more generally).

²⁴ *Id.*, at p. 21.

²⁵ *Id.*, at p. 22.

²⁶ Haoran He, David Neumark, and Qian Weng (2019) "Do Workers Value Flexible Jobs? A Field Experiment," NBER Working Paper 25423.

²⁷ *Id.*, at pp. 12-14 ("This evidence suggests that job seekers value flexibility by amounts in the same ballpark as having a monthly salary that is higher by 10,000 CNY (i.e., from the salary range 10,000-15,000 CNY to 20,000-25,000 CNY), which would imply that flexibility is highly valued.").

²⁸ Bonnie Sue Gariety and Sherrill Shaffer (2001) "Wage differentials associated with flextime," *Monthly Labor Review* 124:68-75, at p. 69.

²⁹ *Id.*, at p. 74 ("This article has found evidence of a positive wage differential associated with flextime for a sample of 2,324 women in 1989 and 3,800 in 1997, presumably reflecting a positive productivity effect that more than offsets any compensating wage differential reflecting hedonic preferences for flextime. No significant wage differential accompanied the adoption of flextime for the 1989 sample of more than 3,000 men, a finding that is consistent with the hypothesis that any productivity effects are approximately offset by hedonic effects within that sample."). See also Kim A. Weeden (2005) "Is there a flexiglass ceiling? Flexible work arrangements and wages in the United States," *Social Science Research* 34(2):454-482, at p. 454 ("Results

“are willing to sacrifice a significant fraction of their wage to reduce hazards and to enjoy a flexible work schedule.”³⁰

III. Workers in the App-Based Economy Place Significant Value on Flexible Work Scheduling

The surveys and analyses described in the previous section attempt to estimate the value of flexibility generally. However, some workers place a higher-than-average value on flexibility, and these workers tend to select work opportunities that allow for such flexibility.

In this section, my aim is to demonstrate that app-based workers in particular place a high value on flexibility, and thus, if this flexibility is no longer offered, the service levels that riders or others expect may diminish. App-based opportunities generally have no requirements for minimum hours worked and no or few constraints on the maximum number of hours; workers are typically free to choose when, where, and how much to work.

Therefore, because, as I discuss later in this report, a reclassification of app-based workers from independent contractors to employees is likely to reduce scheduling flexibility significantly, reclassification can eliminate an important source of value for these workers.

A. Workers in the App-Based Economy Take Advantage of Flexible Scheduling, Indicating a “Revealed Preference” for Flexibility

While jobs in the app-based economy allow flexibility, they do not require it. There is nothing stopping a worker from driving on a ridesharing or delivery platform eight daytime hours a day, Monday through Friday, and taking weekends off. However, doing so is rare for app-based economy workers, indicating that they prefer flexibility in choosing when to work. This conclusion reflects one of the most basic principles of economics called “revealed preference.” Stated simply, revealed preference means that “the choices [people] make are preferred to the choices that they could have made,” but did not.³¹

indicate that flexible-work employees earn wages that are at least equal to, and often higher than, their fixed-schedule and fixed-location counterparts. These wage premiums are greater in nonmanual occupations, but do not vary substantially by gender or parental status.”); Tor Eriksson and Nicolai Kristensen (2014) “Wages or fringes? Some evidence on trade-offs and sorting,” *Journal of Labor Economics* 32(4):899-928 (analyzing a 2009 survey of 3,904 Danish workers asked to select among hypothetical compensation and job amenities packages, and concluding that “[f]lexibility is also valued higher by high-wage earners, the older part of the workforce and by respondents who have children below 6 years of age.”).

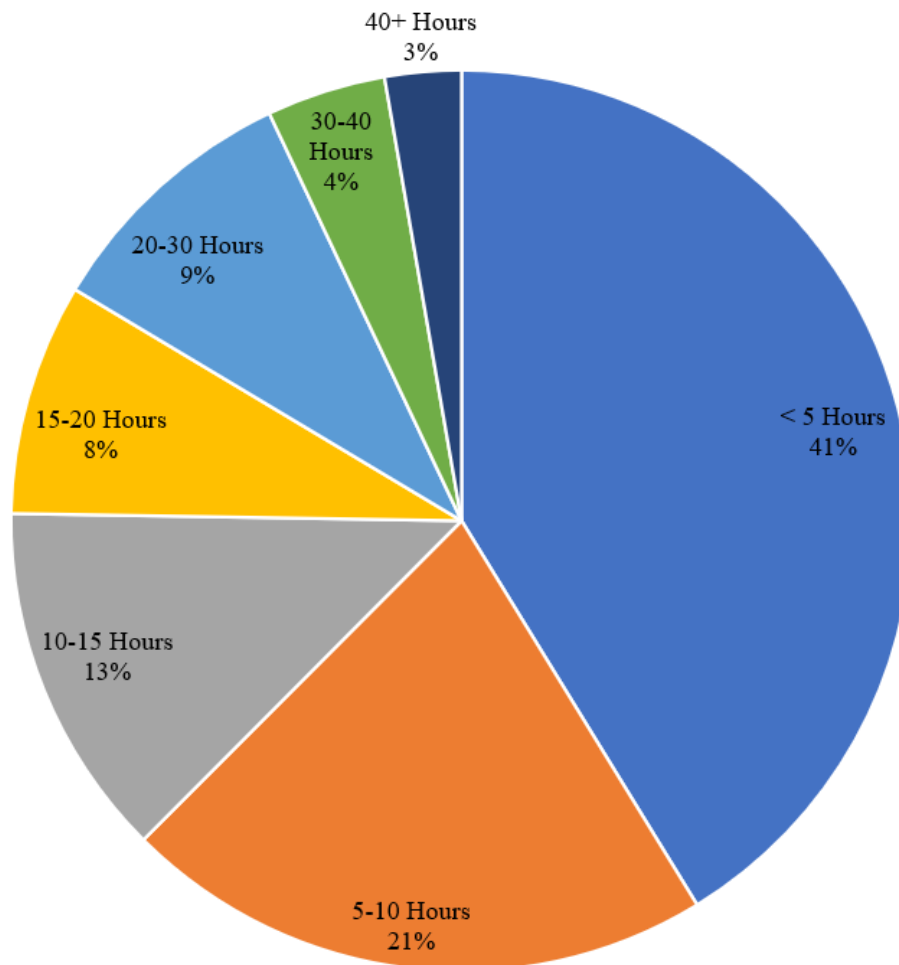
³⁰ Christina Felfe (2012) “The Willingness to Pay for Job Amenities: Evidence from Mothers’ Return to Work,” *ILR Review* 65(2):472-454, at p. 472. See also Matthew Wiswall and Basit Zafar (2018) “Preference for the Workplace, Investment in Human Capital, and Gender,” *Quarterly Journal of Economics* 133(1):457-507 (describing a 2012 survey of undergraduates at New York University and concluding that “[a]fter dividing our sample by gender, we find that women have a much higher average preference for workplace hours flexibility, with an implied WTP of 7.3% compared to 1.1% for men.”).

³¹ Hal R. Varian (2014) *Intermediate Microeconomics: A Modern Approach*, Ninth Edition, W.W. Norton & Company, at p. 121.

Uber, Lyft, DoorDash, and Instacart each provided me with data on hours worked by active drivers on their platforms during 2021,³² where “active” drivers are those that performed at least one trip (rideshare or delivery) in a given calendar quarter.

Active drivers may have some weeks when their driving hours are very low but they remain committed to the platform. As indicated in Figure 1 below, 41% of weeks driven by active drivers in 2021 for these four companies involved less than five hours of work in the designated week, and 62% involved less than 10 hours.³³

Figure 1: Share of Total 2021 Weeks Driven by Active Drivers on the Uber, Lyft, Instacart, and DoorDash Platforms, by Number of Hours Worked



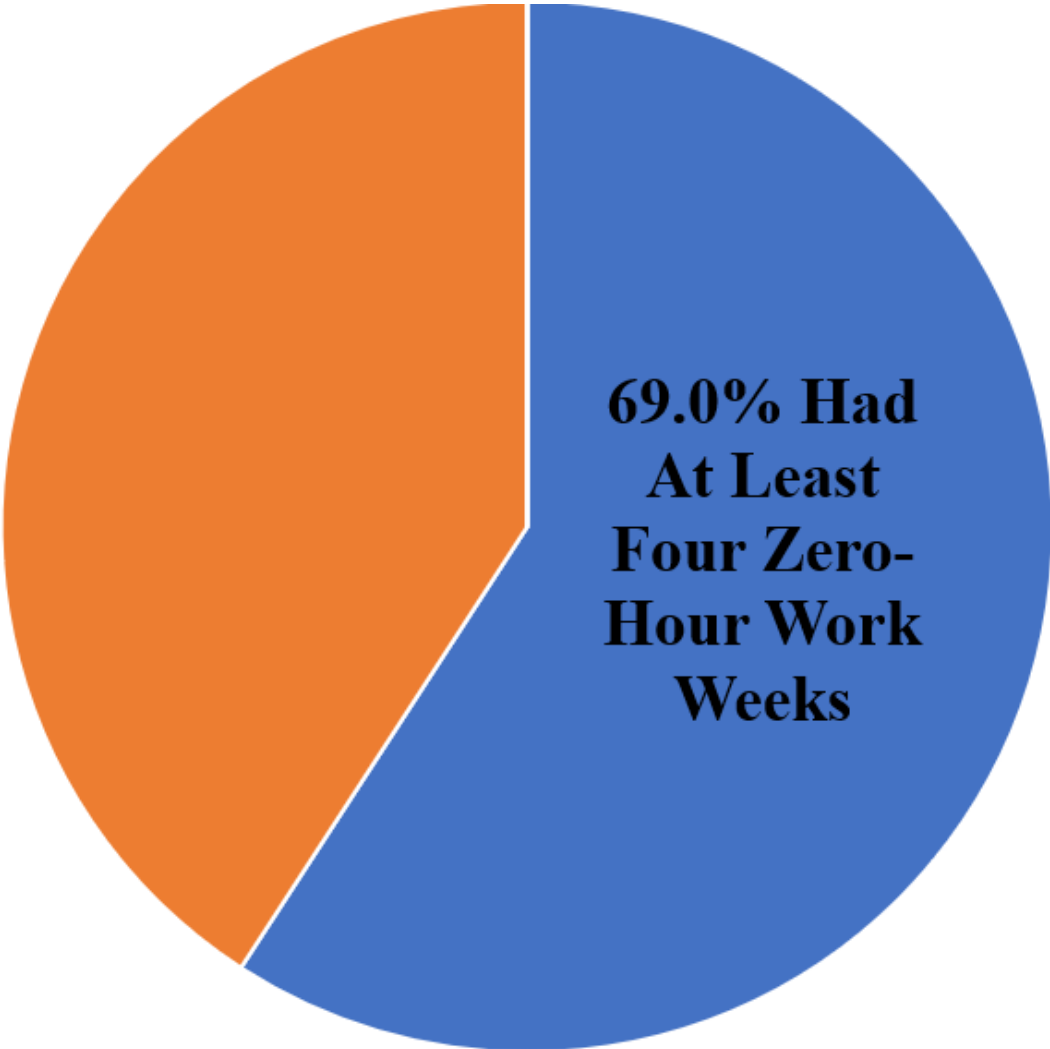
Source: Company data. Active workers are those who completed at least one trip for a company in a given calendar quarter. Less than five hours category includes weeks with zero hours.

³² As previously noted, none of the four companies had access to the other companies’ data at any time.

³³ Published data on UberX come to similar conclusions, finding that there is essentially no “typical” workweek, and 51% of drivers work less than 12 hours per week. M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Emily Oehlsen (2019) “The Value of Flexible Work: Evidence from Uber Drivers,” *Journal of Political Economy* 127(6):2735-2794, at p. 2748. “Active” drivers in their study are those that work at least one hour for at least 16 out of the 36 weeks between September 2015 and April 2016.

Drivers on these companies' platforms also frequently choose not to work at all in a given week. Across the four companies, there were 7,567,732 drivers who formed a basis for analyzing the issue of taking time off from driving; they completed at least one ride or delivery in each of two weeks at least six weeks apart in 2021.³⁴ Among these, 69% (or 5,222,924), had at least four zero-hour weeks between their first and last weeks of work in 2021, as seen in Figure 2. This demonstrates how, unlike in most employment situations, app-based economy workers are able to dip in and out of driving on these platforms at will given their needs and other obligations.

Figure 2: Share of Total 2021 Drivers on the Uber, Lyft, Instacart, and DoorDash Platforms With At Least Four Zero-Hour Worked Weeks



Source: Company data. Workers are included in the data if they completed at least one trip in two separate weeks that are six or more weeks apart during 2021. Zero-hour weeks are counted between the first and last week worked in 2021.

³⁴ Drivers who were active in multiple apps during this period are counted once for each app.

The data provided to me by the companies are not broken out by gender. However, survey data in Massachusetts from February 2022 indicated that 38% of drivers for Uber, Lyft, Instacart, and DoorDash are women.³⁵ Delivery platforms are particularly popular among women; for instance, drivers on the DoorDash platform are 58% women in a November 2021 survey of North American drivers.³⁶ Even among ridesharing platforms where female drivers are relatively less common, women are disproportionately represented in comparison with non-app livery services. In a study of drivers using the Uber platform in 2015 and 2016, women constituted approximately 15% of drivers, but only 1% of taxi drivers.³⁷ As noted above, flexible hours are often considered to be an especially valuable work amenity for women.

Figure 3 indicates, based on data from the same 2015-2016 study, the average weekly hours by gender (including only weeks in which a worker drove at least one hour).³⁸ Figure 3 shows that the number of male or female drivers who averaged less than five hours a week over a long time interval of eight months, September 2015 through April 2016, is very low, although as noted above in Figure 1, a much larger share of drivers work fewer than five hours in any given week. The primary conceptual difference between the two figures is that Figure 1 counts all weeks separately, whereas Figure 3 is aggregated to report the average week for a given driver. The distinction in results between the two figures is consistent with substantial week-to-week variability in hours. I discuss this variability further below.

Figure 3 also shows that women are substantially more likely to average 20 or fewer hours per week on the Uber platform (75% of all female drivers), relative to men (57% of all male drivers).³⁹ Again, this is consistent with the higher value women often place on a flexible schedule.

³⁵ Beacon Research, “Massachusetts App-Based Rideshare and Delivery Driver Survey,” February 2022, at p. 11.

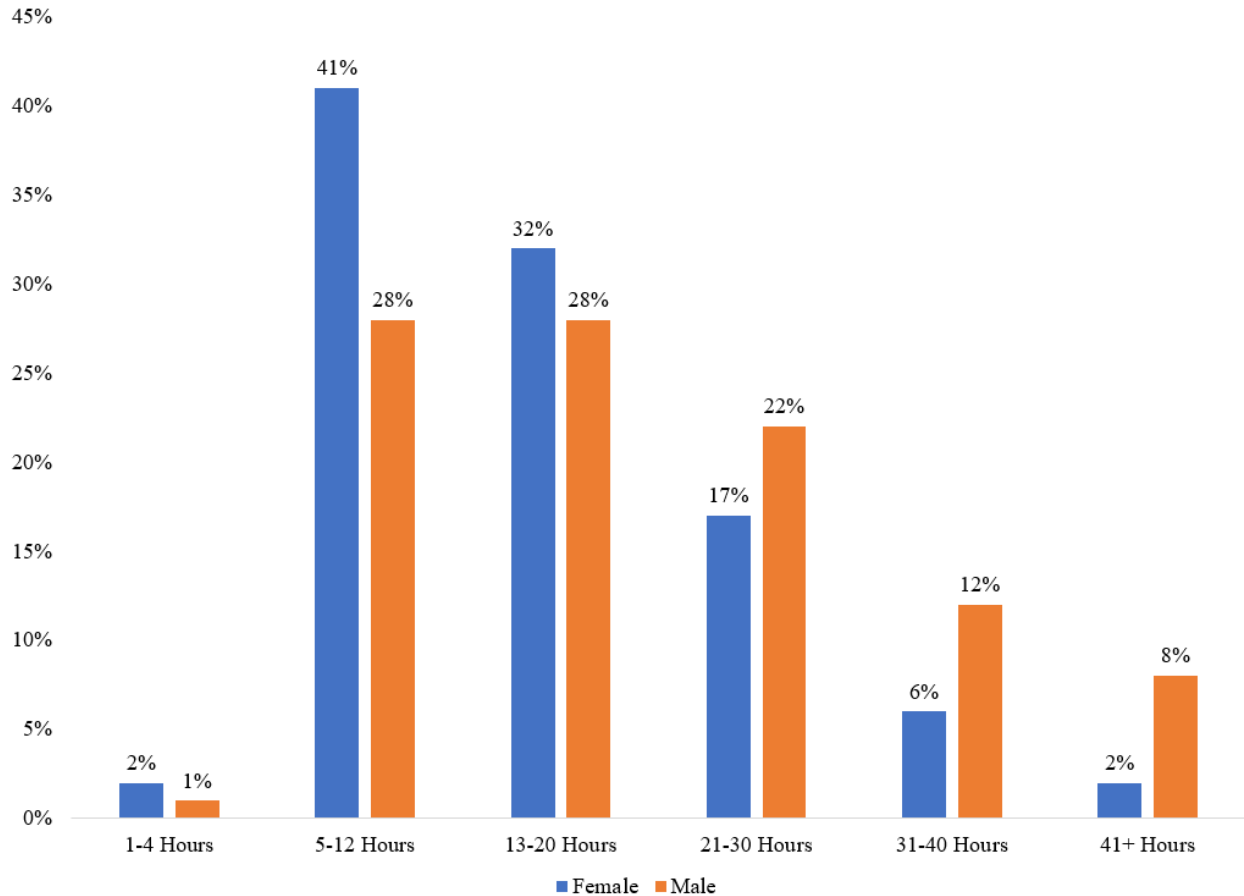
³⁶ DoorDash, “A Majority of Dashers Are Women. Here’s Why They Choose DoorDash,” August 25, 2021.

³⁷ M. Keith Chen, Judith A. Chevalier, Peter E. Riossi, and Lindsey Currier (2021) “Suppliers and Demanders of Flexibility: The Demographics of Gig Work,” at p. 5. The female share of Black drivers is even larger, 25%. *Id.* A different study found that women constitute 27.3% of U.S. drivers on the Uber platform. Cody Cook, Rebecca Diamond, Jonathan V. Hall, John A. List, and Paul Oyer (2021) “The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers,” *Review of Economic Studies* 88:2210-2238, at p. 2217. It is unclear why this result is substantially different from that of Chen, *et al.* (2021).

³⁸ M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Lindsey Currier (2021) “Suppliers and Demanders of Flexibility: The Demographics of Gig Work,” Working Paper, at p. 23.

³⁹ *See also* Cody Cook, Rebecca Diamond, Jonathan V. Hall, John A. List, and Paul Oyer (2021) “The Gender Earnings Gap in the Gig Economy: Evidence from over a Million Rideshare Drivers,” *Review of Economic Studies* 88:2210-2238, at p. 2217 (indicating average hours per week of 17.98 for men and 12.82 for women on Uber).

Figure 3: Share of Active Drivers on the Uber Platform in 2015-2016, by Average Weekly Hours Worked and Gender



Source: M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Lindsey Currier (2021) “Suppliers and Demanders of Flexibility: The Demographics of Gig Work,” Working Paper, at p. 23. Only weeks with at least one hour of driving are included in the average.

Drivers can also benefit from flexibility by working with multiple app-based platforms; bank account data indicate that approximately one in five app-based economy drivers generated income from multiple apps.⁴⁰

Drivers on the Uber platform value flexibility as indicated by the fact that 52% of drivers report working a full-time job in addition to driving with Uber; another 14% report engaging in separate part-time work.⁴¹

⁴⁰ Diana Farrell, Fiona Greig, and Amar Hamoudi (2019) “The Evolution of the Online Platform Economy: Evidence from Five Years of Banking Data,” *American Economic Review Papers and Proceedings* 109:362-366, at p. 363.

⁴¹ Jonathan V. Hall and Alan B. Kruger (2018) “An Analysis of the Labor Market for Uber’s Driver-Partners in the United States,” *ILR Review* 71:705-732, at p. 713.

In the most recent February 2022 polling of drivers on the Uber, Lyft, Instacart, and DoorDash platforms in Massachusetts, 69% indicated that, in addition app-based work, they also had a separate full- or part-time job.⁴² Similarly, a November 2021 survey of drivers on the Lyft platform found that 65% of drivers also used other app-based platforms to provide services.⁴³

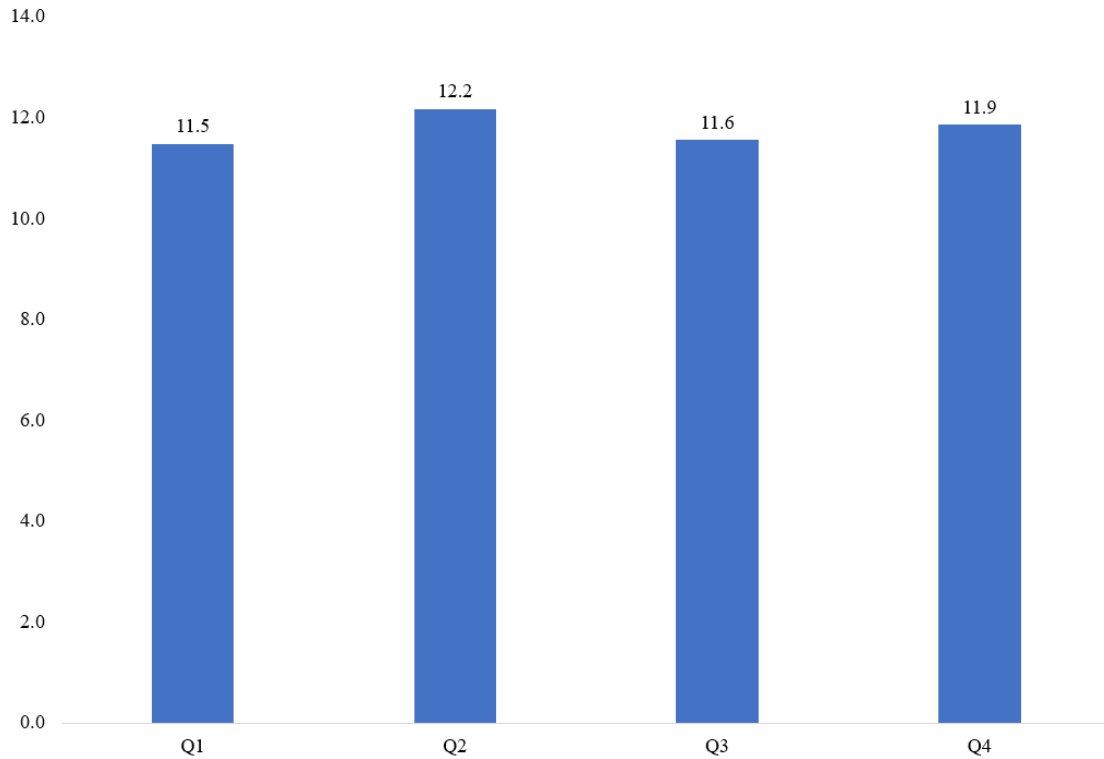
There is also meaningful week-to-week variability in drivers' hours: Drivers take the opportunity to choose to work about 12 more hours in one week than in another recent week. To show this, Figure 4 reports the difference between the highest and lowest hours worked in a given week for drivers on the four companies' platforms during each quarter of 2021. The data are limited to drivers who worked in at least two weeks in the quarter, and only weeks where a driver worked at least 30 minutes. As indicated in Figure 4, in each quarter, the typical driver's hours vary by more than 11 hours between weeks. Given that, as indicated above, a large share of workers work only a few hours, a difference of 11 hours from week to week is very substantial.⁴⁴

⁴² Beacon Research, "Massachusetts App-Based Rideshare and Delivery Driver Survey," February 2022, at p. 11.

⁴³ "Lyft 2022 Economic Impact Report," at p. 9,

⁴⁴ These findings are consistent with other literature on Uber. *See, e.g.*, M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Emily Oehlsen (2019) "The Value of Flexible Work: Evidence from Uber Drivers," *Journal of Political Economy* 127(6):2735-2794, at p. 2749. *See also* Jonathan V. Hall and Alan B. Kruger (2018) "An Analysis of the Labor Market for Uber's Driver-Partners in the United States," *ILR Review* 71:705-732, at p. 723 ("In any given week, well more than half (64%) of driver-partners drive either 25% more or 25% less than the amount they drove during the previous week. Only 17% of driver-partners tend to drive within 10% of the amount of time they drove in the previous week.").

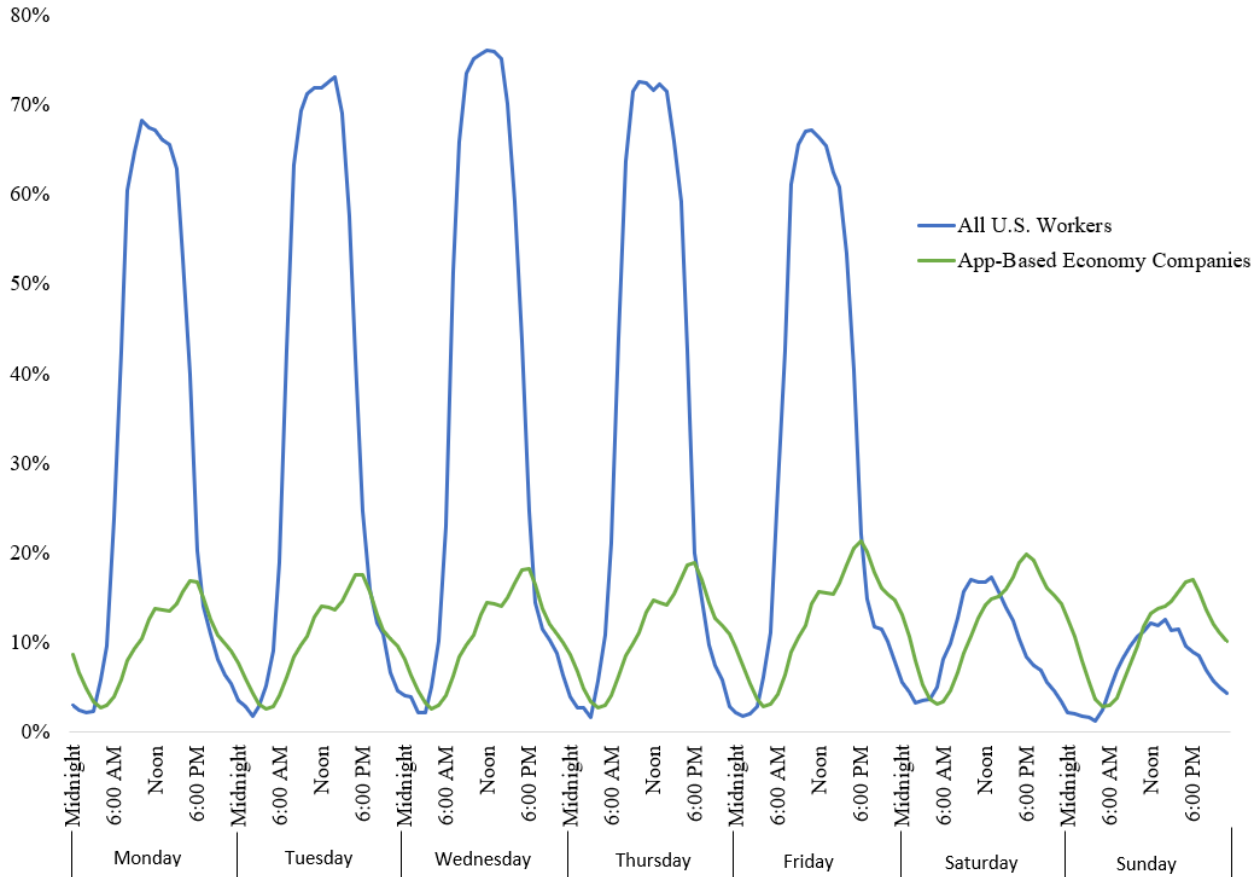
Figure 4: Difference Between Maximum and Minimum Hours Worked in a Week on the Uber, Lyft, Instacart, and DoorDash Platforms, by Quarter in 2021



Source: Company data. Limited to workers who drove in at least two weeks during the quarter, and weeks in which at least 30 minutes were driven.

Drivers in the app-based economy also choose to work non-standard hours of the day compared to workers in other jobs. Figure 5 reports the hours of the day that workers choose to work: It shows that the average share of active drivers working each hour during the week across the four companies during 2020, as well as similar information for all U.S. workers based on nationally-representative 2020 data from the American Time Use Survey, described above.

**Figure 5: Share Working by Hour of the Week
Workers on the Uber, Lyft, Instacart, and DoorDash Platforms, and All U.S. Workers**



Source: American Time Use Survey, company data. Both sources exclude March 15, 2020 through May 9, 2020, due to the immediate effects of the COVID-19 pandemic. ATUS data are restricted to those age 18 or older that are employed but not self-employed or unpaid at their main job. Company data are restricted to workers with at least 10 minutes of active work during a week, and a worker is counted during a particular hour if he or she accepted a job (a rideshare or a delivery) during that hour.

As indicated by Figure 5, most U.S. workers are active during daytime hours roughly between 9 a.m. and 5 p.m., whereas drivers on the four app-based economy platforms are less likely to be working during the day and more likely to work later into the evening. Drivers on these platforms are also more likely to be working on weekends, particularly weekend afternoons and evenings, than workers generally. A published empirical study of drivers on the Uber platform also finds that there are frequently multiple stops and starts in a working day. For drivers working on the Uber platform on a given day, there are an average of 1.31 starting times, in comparison to 1.14 starting times for U.S. workers generally, meaning that drivers on the Uber platform more frequently stop and then restart work on the same day.⁴⁵

⁴⁵ M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Emily Oehlsen (2019) “The Value of Flexible Work: Evidence from Uber Drivers,” *Journal of Political Economy* 127(6):2735-2794, at p. 2751.

Drivers also frequently take advantage of the flexibility provided by app-based work to take extended breaks from work (such as to go to school or take on another job). Bank account data indicate that, among those who generated any earnings from apps in a year, 58% had earnings in three or fewer months of that year.⁴⁶

This evidence indicates that drivers move in and out of the app-based economy as needed to accommodate other work or life events. In a month when a worker receives earnings generated by app-based work, such earnings constitute 54% of total earnings in the month; yet those same workers generate only approximately 21% of total earnings in the year from app-based work.⁴⁷

B. Workers Continue to Sign Up to Earn On App-Based Platforms Even When Other Work is Available, Indicating a “Revealed Preference” For App-Based Economy Work Amenities

App-based economy workers typically have options to work outside of the app-based economy, and yet choose app-based work. A survey of drivers on the Uber platform, for instance, indicates that 80% of drivers reported working full- or part-time hours on another job just before signing up to drive with Uber; only 8% signed up with Uber when unemployed.⁴⁸ In another survey of drivers on the Uber platform in November 2020, 62% stated that ridesharing or food delivery work was not their largest source of personal income.⁴⁹

Moreover, quit rates in many industries have increased since the COVID-19 pandemic, a phenomenon known as the “Great Resignation,” and a Pew Research Center survey found that 45% of those who quit their job in 2021 cited “a lack of flexibility to choose when they put in their hours.”⁵⁰ Figure 6 below reports the share of non-farm employees that quit, by month, since 2019. As indicated in the figure, the quit rate has now increased to well above its level before the pandemic.

⁴⁶ Diana Farrell, Fiona Greig, and Amar Hamoudi (2018) “The Online Platform Economy in 2018: Drivers, Workers, Sellers, and Lessors,” JPMorgan Chase & Co. Institute, at p. 3.

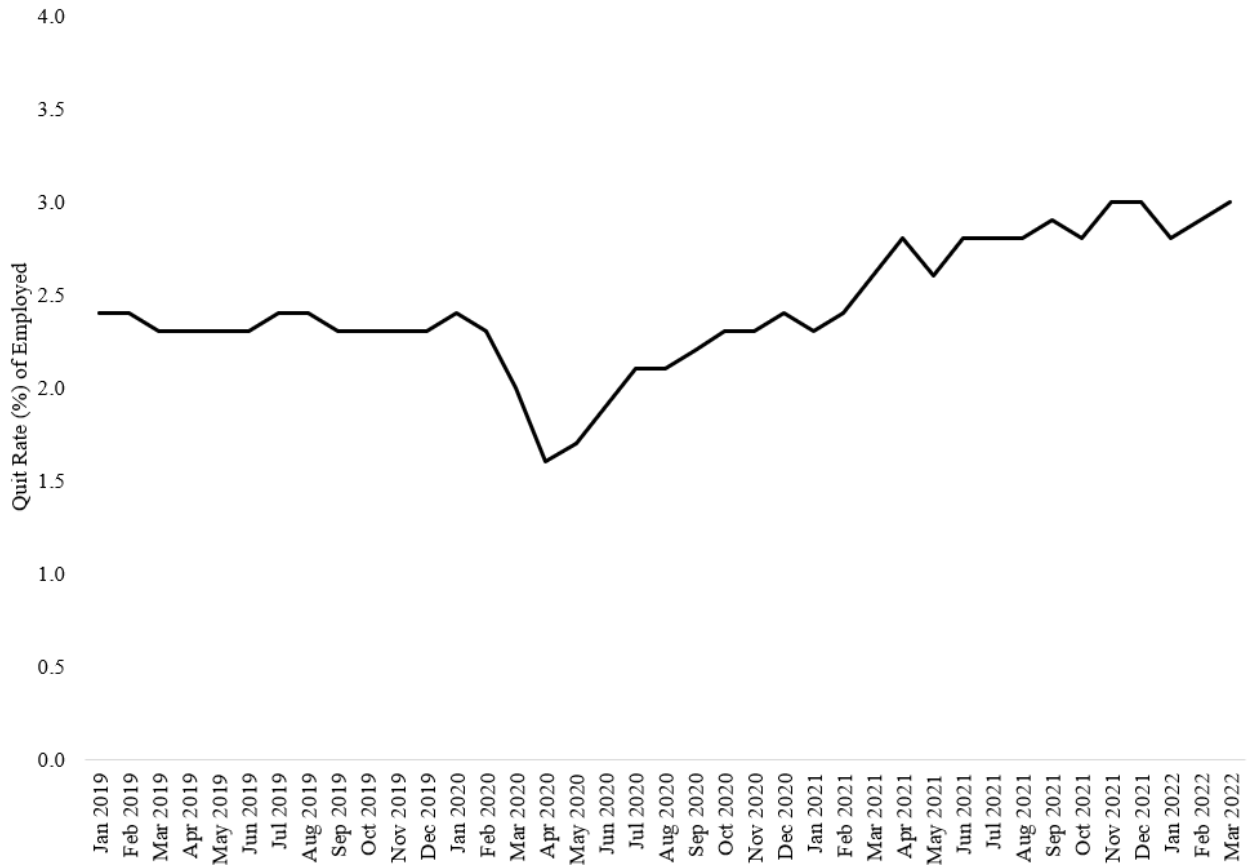
⁴⁷ *Id.*, at p. 4.

⁴⁸ Jonathan V. Hall and Alan B. Kruger (2018) “An Analysis of the Labor Market for Uber’s Driver-Partners in the United States,” *ILR Review* 71:705-732, at p. 712.

⁴⁹ Benenson Strategy Group and GS Strategy Group, “App-Based Driver Survey,” at p. 5.

⁵⁰ Kim Parker and Juliana Menasce Horowitz, “Majority of workers who quit a job in 2021 cite low pay, no opportunities for advancement, feeling disrespected,” Pew Research Center, March 9, 2022.

Figure 6: U.S. Non-Farm Employee Monthly Quit Rate, January 2019 – March 2022



Source: U.S. Bureau of Labor Statistics, Job Openings and Labor Turnover Survey.

It is more difficult to measure the equivalent of a “quit rate” in app-based economy work because workers usually do not need to formally quit – they can simply stop turning on the app. However, available evidence indicates that app-based workers are relatively satisfied. For instance, a recent study in California found that the number of workers registered on the Uber, Lyft, Instacart, and DoorDash platforms increased by 41% between the fourth quarter of 2020 and the third quarter of 2021.⁵¹ A September 2021 survey of 1,508 app-based economy drivers in California found that 82% described themselves as either “very satisfied” or “somewhat satisfied” with their work.⁵²

⁵¹ Taner Osman and Samuel Maury-Holmes (2022) “An Analysis of App-Based Drivers in California,” February 2022, at p. 5.

⁵² EMC Research, “California App-Based Rideshare & Delivery Driver Survey,” September 2021, at p. 15.

C. Surveys Indicate that App-Based Economy Workers Place Significant Value on Flexible Scheduling

App-based economy workers consistently indicate that scheduling flexibility is one of the primary aspects of the work they value. For instance, in two surveys of more than 600 drivers on the Uber platform taken in December 2014 and November 2015, 87% of drivers stated that they signed up to drive with Uber in part “to be my own boss and set my own schedule, and 85% indicated “to have more flexibility in my schedule and balance my work with my life and family.”⁵³ Nearly one-third (32%) of drivers indicated “to earn money while looking for a steady, full-time job.”⁵⁴

When these drivers were asked what they would do if Uber were no longer available to them, 35% (the largest group) said they would seek work with another ride-sharing platform, compared with only 21% that said they would look for full-time work in an unrelated industry.⁵⁵ This finding is consistent with a conclusion that drivers on the Uber platform value the particular amenities of ride-sharing work, including scheduling flexibility.

A May 2020 survey of approximately 1,000 ridesharing drivers (including drivers working with Lyft, Uber, or both) included the question “What’s the most important thing to you as a driver?”⁵⁶ The most common response was “pay” (53%), and the second-most common response was “flexibility” (37%).⁵⁷ An October 2020 survey by Uber of 98,410 of drivers on its platform asked workers to rate their experience with Uber in regard to “your flexibility and independence when driving/delivering (like working when and where you want).”⁵⁸ The vast majority, 76%, of respondents rated their experience “good,” and another 19% responded “OK.” Only 5% rated the flexibility of the job “poor.”⁵⁹

In a May 2021 survey of rideshare drivers in Arizona, 91% agreed that they wouldn’t be able to drive anymore without a flexible schedule.⁶⁰ The aforementioned September 2021 survey of California app-based ridesharing and delivery drivers found that 89% stated that providing flexibility in scheduling was a “very important” aspect of their work, and another 9% stated it was “somewhat important.”⁶¹

⁵³ Jonathan V. Hall and Alan B. Kruger (2018) “An Analysis of the Labor Market for Uber’s Driver-Partners in the United States,” *ILR Review* 71:705-732, at p. 713.

⁵⁴ *Id.*, at p. 714.

⁵⁵ *Id.*

⁵⁶ Harry Campbell, “Lyft & Uber Driver Survey 2020: Uber Driver Satisfaction Takes a Big Hit,” *TheRideshareGuy.com*, February 24, 2021.

⁵⁷ *Id.*

⁵⁸ Uber, “Your Survey Results: We asked you and every single driver and delivery person in the US for feedback about your experience,” October 2020, at p. 7.

⁵⁹ *Id.*

⁶⁰ Lyft, “Independence + Benefits: What Drivers and Voters Want,” June 2021, at p. 3.

⁶¹ EMC Research, “California App-Based Rideshare & Delivery Driver Survey,” September 2021, at p. 16.

In a November 2021 survey of North American drivers on the Lyft platform, 94% stated that a flexible schedule is either “very important” or “extremely important” to them because, among other reasons, it allows them to drive hours that do not conflict with their work schedule at a job or class schedule for those in school, and allows them to be available for children or others for whom they provide care.⁶² Lyft also performed a survey in which drivers on its platform were offered two hypothetical work arrangements with different levels of pay, control over schedule, and 10 other work characteristics.⁶³ A regression analysis on the results concluded that “a flexible schedule is the single most important attribute” of work arrangements for these drivers, with drivers being 12 percentage points more likely to say that a work arrangement is better for them if it offers control over their schedule and location, relative to an arrangement that requires them to drive schedule shifts in pre-specified locations.⁶⁴

D. Empirical Studies Indicate that App-Based Economy Workers Receive Significant Value from Flexible Scheduling

Recently, several economic studies have attempted to quantify in dollar terms the value drivers on the Uber platform receive from scheduling flexibility. One way this can be done is to analyze how drivers respond when the earnings available to them vary from hour to hour or across locations due to the application of “surge” pricing, and the amount of the surge. During periods of high demand for drivers, or when the number of drivers in a high-demand area is low, Uber applies a surge factor that raises the price paid by passengers by a given factor, such as 1.2x (that is, a 20% increase in the price of a ride). Drivers receive a portion of that additional fare. (Lyft has a similar feature.)

Economic models of labor supply generally assume that workers have a “reservation wage” (that is, a minimum acceptable level of compensation) and when a company offers to pay more than the worker’s reservation wage, the worker will accept the job. A worker’s reservation wage may vary at different times of the day; for instance, a company may have to pay more to get someone to work at 2 a.m. than at 2 p.m. In a standard fixed-schedule job, what matters is the average reservation wage during the work day, since these jobs are “take-it-or-leave-it” propositions and do not offer an option to work only some of the hours.

When scheduling flexibility is allowed, however, a worker may work only during the hours in which the company offers compensation greater than the reservation wage. If a worker’s reservation wage varies a lot from hour to hour, then the worker can gain significant value through scheduling flexibility by selecting only the most preferred hours.

For example, suppose the earnings for drivers on the Uber platform in an area is \$15 per hour between 2 p.m. and 3 p.m., and a particular driver works during that hour. Suppose further that, between 5 p.m. and 6 p.m., surge pricing lifts driver earnings in the area to \$25 per hour, but the

⁶² “Lyft 2022 Economic Impact Report,” at pp. 7-8.

⁶³ Lyft, “Economic Impact Report, 2022 Methodological Supplement,” February 2022, at pp. 14-15.

⁶⁴ *Id.*, at p. 16.

same driver does *not* work during that hour. One can conclude that the driver’s reservation wage must vary significantly – below \$15 between 2 p.m. and 3 p.m., but above \$25 between 5 p.m. and 6 p.m. – and that flexibility in scheduling likely provides value to the worker.

The authors of a recent peer-reviewed study in a top economics journal used this methodology to estimate the reservation wages of approximately 200,000 drivers on the Uber platform in major U.S. cities between 2015 and 2016. They stated, “[t]he results suggest that the drivers in our sample experience large shifts in reservation wage that are not consistent from week to week and, thus, may place a large value on a flexible work arrangement. Adaptation to hourly changes in reservation wages will likely be an important component of overall labor surplus,” or in other words, the total value workers receive.⁶⁵

The article further estimated the value, or surplus (the amount drivers earn relative to their reservation wage), from flexibility at approximately \$10 per hour on average, equal to 40% of the median driver’s expected earnings.⁶⁶ This is eight times as valuable as what the authors estimate would be provided by an alternative “taxi-style” alternative arrangement, in which drivers would choose in advance from one of three available daily shifts. The flexibility offered by Uber in this case provides more value because drivers can flexibly respond to unexpected changes, such as weather shocks, instead of pre-committing to a shift.⁶⁷

In a follow-up study, the authors break out their results by gender and age. They find that restrictions on flexibility for drivers create a loss of value that is “somewhat larger for women relative to men, for younger people relative to older people, and for lower income groups relative to higher ones.”⁶⁸

A separate 2020 paper complements these results through the implementation of a field experiment at Uber.⁶⁹ A random subset of drivers on the Uber platform in Boston, Chicago, and San Francisco between 2016 and 2018 were told in advance that they would receive a 0.1 increment on their earnings during a certain period of the day.⁷⁰ For instance, if the surge multiplier was normally 1.1x during a specified period, these randomly-selected drivers would receive instead 1.2x. By observing drivers’ choices of work schedule during the experiment, the authors estimated their reservation wages. As with the studies described above, the authors conclude that there is “a lot of heterogeneity across drivers” in reservation wages, even

⁶⁵ M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Emily Oehlsen (2019) “The Value of Flexible Work: Evidence from Uber Drivers,” *Journal of Political Economy* 127(6):2735-2794, at p. 2767.

⁶⁶ *Id.*, at p. 2776 (these values are gross of car operating costs borne by drivers).

⁶⁷ *Id.*, at pp. 2776-2777.

⁶⁸ M. Keith Chen, Judith A. Chevalier, Peter E. Rossi, and Lindsey Currier (2021) “Suppliers and Demanders of Flexibility: The Demographics of Gig Work,” Working Paper, at pp. 20.

⁶⁹ Kuan-Ming Chen, Ning Ding, John List, and Magne Mogstad (2020) “Reservation Wages and Workers’ Valuation of Job Flexibility: Evidence from a Natural Field Experiment,” Becker-Friedman Institute Working Paper No. 2020-191.

⁷⁰ *Id.*, at pp. 7-8, 10.

conditional on age and gender, and hence, significant potential value gained from flexible scheduling.⁷¹

The authors then estimated the effect of a hypothetical arrangement that would force workers to pre-commit each day to a preferred five-hour block of driving, as opposed to allowing them the flexibility to adjust during the day (as they can in reality with Uber). They found that “[t]he wage multiplier needed for drivers to accept the commitment scheme is 1.21. In other words, the average worker would require 21 percent higher wages to prefer the commitment scheme over the flexible scheme. Female drivers place a higher value on the flexibility of adjustment to shocks than male drivers; they need a multiplier of 1.38, while male drivers only require 1.19.”⁷² These findings again show that drivers on the Uber platform place a substantial value on flexibility – 21% of their wages on average.

A 2021 working paper applies a similar methodology as that described above to drivers on the DoorDash platform with data that span between February 2019 and August 2020.⁷³ They identify certain daily “blocks,” such as 7 a.m.-10 a.m., 10 a.m.-2 p.m., and 2 p.m.-5 p.m. They then consider a hypothetical policy under which workers may maintain the preferred total number of hours but lose access to their preferred block in each week. They conclude such a policy would be “equivalent to cutting his weekly earnings by 2.9%” for the median driver, with the most affected 10 percent of drivers experiencing an average loss of 17%.⁷⁴ Losing access to the two most preferred weekly blocks is equivalent, in their calculations, to a loss of 10.2% of weekly earnings.⁷⁵

IV. Under an Employment Model, App-Based Economy Firms Would Likely Substantially Reduce or Eliminate Worker Flexibility

A. The Benefits of Applying an Employment Model to App-Based Economy Firms are Uncertain

A complete evaluation of the welfare impacts of employment status for app-based economy workers is beyond the scope of this report. As I note briefly below, additional regulation and costs associated with a switch to employment status may incentivize companies and workers to respond in various ways that would need to be taken into account in order to draw a conclusion. In this report, I focus on only one particular outcome, the provision for flexible hours currently available to most app-based economy workers. For that reason, in this subsection I discuss only in broad terms the general effects of an employment model and only insofar as these general effects are relevant for the analysis of scheduling flexibility that follows in the other subsections.

⁷¹ *Id.*, at p. 33.

⁷² *Id.*, at p. 39.

⁷³ Laura Katsnelson and Felix Oberholzer-Gee (2021) “Being the Boss: Gig Workers’ Value of Flexible Work,” Harvard Business School Working Paper 21-124, at p. 5.

⁷⁴ *Id.*, at p. 11.

⁷⁵ *Id.*

Nevertheless, economic theory provides no basis to assume that a reclassification as employees would necessarily be a net benefit for workers with app-based platforms.

Under employment regulations in Massachusetts and other states, I understand that app-based workers would, if classified as employees, be subject to a number of regulations and taxes. First, app-based workers would be subject to various hours-based earnings regulations. For instance, employees must receive at least the minimum wage for every hour worked, regardless of how many rides were given, deliveries made, or miles driven. The current minimum wage in Massachusetts is \$14.25 per hour and is scheduled to increase to \$15.00 per hour in 2023.⁷⁶ For employees who work more than 40 hours per week, federal law would require time-and-a-half overtime pay in Massachusetts of at least \$21.38 per hour in 2022 and \$22.50 per hour in 2023.⁷⁷

By contrast, under their current status as independent contractors, app-based workers' earnings may vary as determined by a productivity-based formula that may depend on many factors within the drivers' control, such as the number of rides or deliveries accepted, distance driven, location, and time of day. Drivers' earnings may or may not exceed the minimum wage for any given ride or delivery, depending in part on the worker's choices – for instance, whether the worker is willing to provide service to consumers during high-volume periods or locations versus other times or locations that may be more convenient for the worker.

There is a very large academic literature evaluating the labor market impact of minimum wages. The traditional view of economists was that minimum wage laws led to reductions in worker welfare on average, primarily because employers would respond by hiring fewer workers or by cutting nonmonetary benefits to offset higher wages. That consensus has been questioned by several empirical studies since the mid-1990s, although other recent studies have found results consistent with the traditional view, and there is today no general agreement among economists on the net effects of minimum wages.⁷⁸ Even less clear is the impact of applying a minimum wage to a particular industry (such as app-based economy firms) where it previously did not apply.⁷⁹

⁷⁶ Mass.gov, “Massachusetts law about minimum wage,” <https://www.mass.gov/info-details/massachusetts-law-about-minimum-wage#massachusetts-minimum-wage->. The minimum wage for tipped employees is lower, but inclusive of tips, drivers would still be required to earn at least \$14.25 per hour in 2022. *Id.*

⁷⁷ Department of Labor Wage and Hour Division, “Overtime Pay,” <https://www.dol.gov/agencies/whd/overtime> (“The federal overtime provisions are contained in the Fair Labor Standards Act (FLSA). Unless exempt, employees covered by the Act must receive overtime pay for hours worked over 40 in a workweek at a rate not less than time and one-half their regular rates of pay.”).

⁷⁸ Chicago Booth Initiative on Global Markets Economic Experts Panel, “The US Minimum Wage,” February 2, 2021 (assessing the statement that “A federal minimum wage of \$15 per hour would lower employment for low-wage workers in many states,” and finding that 45% of the panel of 42 economists responded either “Agree” or “Strongly Agree,” 14% “Disagree” or “Strongly Disagree,” and 33% “Uncertain”).

⁷⁹ The economic theory typically proposed for why the traditional view of the minimum wage may be wrong is that, in some instances, a firm may restrict employment if it holds “monopsony” power over workers (that is, if workers have few or no alternative sources of employment). In such cases, a minimum wage can increase both wages and employment. Orley C. Ashenfelter, Henry Farber, and Michael R Ransom (2010) “Labor Market Monopsony,” *Journal of Labor Economics* 28(2):203-, at p. 205 (“The existence of monopsony power raises the possibility that institutions that raise wages (e.g., labor unions or minimum wage legislation) can, in fact,

There are other hours-based earnings regulations applicable to employees as well. For instance, employees working more than 30 hours per week for more than 120 days per year are typically required to receive health insurance coverage.⁸⁰ In some cases, the coverage requirement is based on hours worked during a “lookback” period (such as three months prior), regardless of how many hours the employee currently works.⁸¹ In addition, some jurisdictions mandate certain rest breaks and meal reimbursement for employees working a certain number of hours. Whether and to what extent workers are better off with these mandated benefits is uncertain, since employers can adjust wages downward or reduce other non-mandated benefits in response.⁸² In addition, to the extent wages do not fully adjust downward (for instance, due to the minimum wage), the total cost of employment rises and employers may therefore hire fewer workers.⁸³

An employment model would also impose on companies in the app-based economy additional costs, including what economists call “quasi-fixed” costs. Quasi-fixed costs are those that are (at least to a degree) independent of the number of hours a given employee works, but which vary with the number of employees. A standard example of a quasi-fixed cost is the expense of employers posting job listings and then doing searches to fill a position. Thus, these costs include posting want ads, interviewing candidates, and human resources costs of onboarding the new hire. To add new employees, a company incurs additional costs of this nature, but these costs are approximately the same regardless of how many hours the new employee is expected to work.

increase employment.”). Therefore, a key question in evaluating the economic impact of employment status on app-based economy workers is whether they have reasonable alternatives to app-based employment.

⁸⁰ HealthCare.gov, definition of Full-Time Employee, <https://www.healthcare.gov/glossary/full-time-employee/> (“Any employee who works an average of at least 30 hours per week for more than 120 days in a year.”).

⁸¹ Internal Revenue Service, “Determining Full-Time Employees for Purposes of Shared Responsibility for Employers Regarding Health Coverage (§ 4980H) Notice 2012-58.”

⁸² See, e.g., Jonathan Gruber (1994) “The Incidence of Mandated Maternity Benefits,” *American Economic Review* 84(3):622-641, at p. 622 (“I find substantial shifting of the costs of these mandates to the wages of the targeted group.”); Katherine Baicker and Amitabh Chandra (2006) “The Labor Market Effects of Rising Health Insurance Premiums,” *Journal of Labor Economics* 24(3):609-634, at p. 609 (“For workers covered by employer provided health insurance, this increase in premiums results in an offsetting decrease in wages of 2.3%.”); Jonathan T. Kolstad and Amanda E. Kowalski (2016) “Mandate-based health reform and the labor market: Evidence from the Massachusetts reform,” *Journal of Health Economics* 47:81-106, at p. 81 (“... we find that jobs with ESHI [employer-sponsored health insurance] pay \$2812 less annually, somewhat less than the cost of ESHI to employers.”).

⁸³ Lawrence H. Summers (1989) “Some Simple Economics of Mandated Benefits,” *American Economic Review Papers & Proceedings* 79(2):177-183, at p. 181 (“Suppose, for example, that there is a binding minimum wage. In this case, wages cannot fall to offset employers’ cost of providing a mandated benefit, so it is likely to create unemployment.”).

In the case of app-based economy companies, the expense of additional mandated benefits may be quasi-fixed.⁸⁴ Moreover, there are also additional quasi-fixed expenses, such as the cost of administering payroll and retirement plans for employees. In addition to increasing companies' expenses, quasi-fixed costs also affect the ability of companies to offer their employees flexible scheduling, as I discuss below.

B. Economic Theory Indicates that Employment Status Would Lead to Reduced Scheduling Flexibility in the App-Based Economy

1. Economic theory indicates that employment status would lead to fewer workers with longer hours and fewer short-term workers in the app-based economy

As described earlier in this report, workers generally and workers on app-based platforms in particular value scheduling flexibility significantly. A loss of scheduling flexibility would therefore reduce the value received from this work. Standard economic theory indicates that such an outcome is likely.

When a company has significant quasi-fixed labor expenses of the type described above, it is incentivized to minimize such costs by hiring fewer workers and requiring each hire to work longer hours, rather than hiring more workers with shorter hours.⁸⁵ One specific way that economists recognize companies can respond to quasi-fixed employment costs is to set a minimum required number of hours per week or per month.⁸⁶ Companies also are incentivized to limit hiring of lower-productivity workers, who might otherwise be employable (at a lower wage) absent the need to pay quasi-fixed costs to have such workers on the payroll.

For instance, in the case of health insurance, one labor economics survey article explains,⁸⁷

⁸⁴ Ronald G. Ehrenberg, Robert S. Smith, and Kevin F. Hallock (2013) *Modern Labor Economic: Theory and Public Policy*, Fourteenth Edition, Routledge, at p. 155 (“Most life and medical insurance policies have premiums to the employer that are charged on a per-worker basis and are not proportional to the hours worked. Pay for time not worked (vacation, holidays, and sick leave) also tends to be quasi-fixed.”).

⁸⁵ Francoise Delmez and Vincent Vandenberghe (2018) “Working Long Hours: Less Productive But Less Costly? Firm-Level Evidence from Belgium,” *Labour* 32(4):259-287, at p. 259 (“The tentative conclusion is that firms facing such costs [quasi-fixed labor costs] are enticed to raise working hours, even if this results in lower productivity.”).

⁸⁶ Sachiko Kuroda and Isamu Yamamoto (2013) “Firms’ demand for work hours: Evidence from matched firm-worker data in Japan,” *Journal of the Japanese and International Economies* 29:57-73, at p. 57 (“Based on an empirical framework in which each firm sets a minimum boundary of work hours and where workers hired by the firm are required to put in at least the minimum hours, we found that the minimum requirement depends on each firm’s fixed costs of labor. Specifically, firms that tend to hoard labor during recessions, presumably because of higher fixed costs, require incumbent workers to work longer hours during normal times. Since Japanese firms have long been considered as incurring high fixed costs to train workers, we interpret the long work hour requirement as a rational strategy for Japanese firms in protecting high-skill-accumulated workers from dismissal.”).

⁸⁷ Janet Currie and Brigitte C. Madrian (1999) “Health, Health Insurance and the Labor Market,” pp. 3309-3416 in *Handbook of Labor Economics*, Vol. 3, Part C (Orley C. Ashenfelter and David Card, eds.), Elsevier, at p. 3401.

That health insurance is a fixed cost gives firms an incentive to try and amortize this fixed cost over as many units of output as possible. The firm can do this in two ways. The first is to employ higher productivity workers ... The second way that firms can amortize their fixed health insurance costs over as many units of output as possible is to substitute hours for workers in allocating labor input between the number of workers to employ and hours per worker. This is because when the firm hires an additional worker, it must pay both the fixed cost of providing health insurance and the marginal compensation costs associated with soliciting the services of an additional worker. When it increases the hours of an existing worker, however, it only incurs the marginal compensation costs because the health insurance costs have already been incurred.

The same logic applies to any quasi-fixed cost, such as payroll or retirement plan administration costs. An employment model that increases quasi-fixed costs will generally lead to fewer workers with longer hours, instead of more workers with the option to work fewer hours. Another implication of quasi-fixed costs is that companies will be less likely to hire workers who are not expected to remain with the company for a significant period. Paying quasi-fixed costs may not be economical for an employee who is expected to work for only a short time.⁸⁸ A broad range of empirical analyses supports these conclusions.⁸⁹

2. *Economic theory indicates that employment status would lead to employer monitoring and control over where and when work was available in the app-based economy*

As noted above, earnings for app-based economy workers today typically is based on a formula reflecting productivity. For instance, driver earnings on ridesharing platforms like Uber and Lyft are based on the number of rides given, the distance driven on trips, and the time spent driving on trips, among other factors. Extra earnings are available for drivers who work during high-demand hours and high-demand locations. Drivers can always choose to give fewer rides and work at lower-demand times or locations if it is more convenient but doing so involves lower earnings.

Economic theory indicates that performance-based earnings of this nature give workers incentives to work hard when performance is easily observable, as it typically is in app-based work. The number of rides given or deliveries made is automatically reported through the app,

⁸⁸ A classic work on the issue of quasi-fixed costs states, "Thus a higher degree of fixity leads not only to greater stability of employment in terms of numbers or man-hours employed but also to lower labor turnover rates." Walter Oi (1962) "Labor as a Quasi-Fixed Factor," *Journal of Political Economy* 70(6):538-555, at p. 540.

⁸⁹ See, e.g., Sara Dolfin (2006) "An examination of firms' employment costs," *Applied Economics* 38:861-878, at p. 861 ("Results show that higher costs are associated with lower turnover, fewer vacancies, and longer hours as predicted by a model of labour demand."). See also David Cutler and Brigitte Madrian (1996) "Labor Market Responses to Rising Health Insurance Costs: Evidence on Hours Worked" National Bureau of Economic Research Working Paper 5525, at p. 1 ("Using data from the CPS and the SIPP, we show that rising health insurance costs over the 1980s increased the hours worked of those with health insurance by up to 3 percent. We argue that this occurs because health insurance is a fixed cost, and as it becomes more expensive to provide, firms face an incentive to substitute hours per worker for the number of workers employed.").

and workers are often rated by customers with “stars” or other metrics that again can be easily observed. As I wrote in a review article on personnel economics for the *Journal of Economic Perspectives*, “firms will pay for performance when it is cheaper to measure performance. When measurement costs are low, good workers will demand that their output be measured.”⁹⁰

In addition, performance-based earnings also incentivize highly-motivated workers in particular to earn on app-based platforms, since this is where their earnings will be highest. Again, I wrote in my article on personnel economics, “[w]orkers with a high disutility of effort relative to their output will avoid firms that pay for performance. Workers are heterogeneous—those who value intrinsic internal motivation more than extrinsic rewards will gravitate towards jobs with salary or wage-based pay.”⁹¹ In other words, any diminishment in the performance-based aspect of earnings for app-based workers not only diminishes incentives, but also attracts an adverse selection of less-motivated workers, potentially further reducing productivity.

Under an employment model, app-based platforms may diminish the productivity-based aspects of their approach to earnings. For one reason, as discussed above, certain hours-based earnings rules would apply, such as the minimum wage or health insurance coverage. A company will not allow employee productivity to be lower than the total compensation it is required to pay (including wages and benefits), and so would have to set rules and monitor enforcement in order to maintain high productivity. For instance, it is currently allowed, and very common, for rideshare drivers to sign up with both Uber and Lyft, and to have both apps open until a ride is accepted on one or the other app.⁹² Under an employment model, if this type of multi-app activity were allowed, this time would presumably need to be compensated by both Uber and Lyft simultaneously. As a consequence, such activity would likely not be allowed by app-based economy companies. Similarly, drivers could not be allowed to operate in areas or times when few rides were demanded. New workers could not be allowed to join an app-based platform and then perform little or no work (such as only having the app open), while still being paid a regulated amount of earnings.

Limiting such behavior would require app-based economy companies to monitor drivers. For instance, typically, rideshare companies currently require drivers on their platforms to demonstrate that they are licensed to drive, do not have disqualifying driving or criminal records, and have a safe and reliable vehicle with valid insurance. Otherwise, drivers can typically drive when and where they want to, even if there are few rides likely to be requested in a given location at a given time. Drivers can also turn down rides. A study of drivers on the Uber and

⁹⁰ Edward P. Lazear and Kathryn L. Shaw (2007) “Personnel Economics: The Economist’s View of Human Resources,” *Journal of Economic Perspectives* 21(4):91-114, at p. 98.

⁹¹ *Id.*, at p. 99. For an empirical example, see Edward P. Lazear (2000) “Performance Pay and Productivity,” *American Economic Review* 90(5):1346-1361, at p. 1346 (“A new data set for the Safelite Glass Corporation tests the predictions that average productivity will rise, the firm will attract a more able workforce, and variance in output across individuals at the firm will rise when it shifts to piece rates [pay-for-performance]. In Safelite, productivity effects amount to a 44-percent increase in output per worker.”).

⁹² Louis Hyman, Erica L. Groshen, Adam Seth Litwin, Martin T. Wells, Kwelina P. Thompson, and Kyrylo Chernyshov (2020) “Platform Driving in Seattle,” Cornell University Institute for Workplace Studies, at p. 39 (“In Seattle, the app-use of drivers is 2/3 single-app and 1/3 multi-app.”).

Lyft platforms in Seattle found that they spent a significant amount of time with one or both apps open, but not with a passenger or on the way to pick up a passenger.⁹³

However, under an employment model, these companies would need to monitor workers for productivity. App-based economy companies would likely need to limit where and when employees could work and set minimum standards for productivity that would need to be met; workers who failed to meet these standards could face reduced hours or even be fired. Given the competitiveness of the app-based economy, companies that failed to exercise sufficient control over workers would fall behind in terms of productivity relative to those that did exercise more control and would be in danger of losing customers and market share. Moreover, over time, lower-productivity workers would increasingly migrate to app platforms that failed to exercise sufficient control over workers, potentially further reducing those platforms' value to consumers.

3. *An illustrative example*

It is difficult to predict exactly how any given app-based economy company would respond to a requirement that workers using its platform be classified as employees. However, to illustrate the concepts explained above, consider a worker on a ridesharing or delivery platform who works five hours in a week. As discussed above, a plurality of worker-weeks across the Uber, Lyft, Instacart, and DoorDash platforms involve fewer than five hours.

Suppose under the current independent contractor model, the worker earns \$26 per hour on average, or a total of \$130 per week (assuming five hours of work).⁹⁴ Ridesharing and delivery platforms' fees vary across companies, and the amount of revenue to the platform depends on how many rides or deliveries are given, among other factors. For illustrative purposes, assume the platform receives \$50 in revenue per week for the rides given by this worker.

Under an employment model, if the platform's costs to hire and retain this worker exceed \$50 per week, doing so is unprofitable.⁹⁵ In other words, if the quasi-fixed costs for this worker, as well as the cost of overseeing the worker (in addition to the other costs of running the app) exceed \$50, it would be unprofitable to hire the worker as an employee.

More generally, if an app-based worker is expected to work H hours per week and generate S per hour in sales, and the company's share of sales is C , then the worker would only be hired as an employee if

⁹³ *Id.*, at p. 29 (indicating a median of 4.0 hours per week in total time with a ride-sharing app on, but not with a passenger or on the way to pick up a passenger).

⁹⁴ This is approximately the average hourly earnings received by workers who drove with Uber, Lyft, DoorDash, or Instacart in 2021. BW Research Partnership (2022) "Hourly Earnings of App-Based Rideshare Drivers and Food Delivery Workers in Massachusetts," available at <https://yesformassdrivers.org/wp-content/uploads/2022/03/MA-App-Driver-Earnings-Report-FINAL.pdf>, at p. 3 (indicating an average of \$26.08 per hour, "a figure that accounts for driver expenses and includes a portion of time when drivers are on the app in the period prior to accepting an offered ride or delivery.").

⁹⁵ This is a conservative assumption, since the platform also must cover non-labor fixed costs, such as building and updating the app, renting office space, and so on.

$$H > Sx C > F,$$

where F is the sum of quasi-fixed costs, monitoring costs, and any other incremental costs incurred by the company per week. Rearranging this equation, employees are only hired if:

$$H > F / (Sx C).$$

In other words, given the presence of quasi-fixed costs in F , economic theory predicts that there will be a minimum number of hours per week that will be required of workers under an employment model.

C. Empirical Evidence Indicates that Employment Status Would Lead to Reduced Scheduling Flexibility in the App-Based Economy

1. Evidence from other industries indicates that employment status would lead to reduced scheduling flexibility in the app-based economy

While it is difficult to know exactly how each platform company would react to the reclassification of app-based workers as employees, it is instructive to examine the practices of other industries that operate on an employment model.

Firms in other industries rarely, if ever, allow for anything like the complete scheduling flexibility that most app-based economy companies offer today. I am not aware of systematic practices in any industry such that employees have the ability to work exactly as many hours as they wish, if any, at any time of day or night and in any location, as is typically possible for app-based economy workers.

Available data are consistent with this conclusion. According to the American Time Use Survey published by the U.S. Bureau of Labor Statistics, in 2020, 35.5% of U.S. wage and salaried workers work a “standard” daily schedule with at least seven hours between 7 a.m. and 7 p.m. (and no hours outside that window) on any given weekday.⁹⁶ These data are the same as plotted in Figure 4 above.

A national survey of U.S. adults in 2016 found that 60% of hourly workers report that their employer decides their starting and finishing work times without their input.⁹⁷ Approximately 17% receive notice of their hourly schedule one day or less in advance; another 40% receive

⁹⁶ The equivalent figure for 2019 (weighting respondents to allow an “apples-to-apples” comparison with 2020) is 31.2%. The American Time Use Survey is administered by the U.S. Census Bureau and asks a random sample of Americans to record information in a 24-hour “time diary” about each of their activities during a given day (from 4:00 a.m. on one day to 4:00 a.m. on the next day). U.S. Bureau of Labor Statistics, “American Time Use Survey: Frequently Asked Questions (FAQs),” <https://www.bls.gov/tus/atusfaqs.htm#1>.

⁹⁷ Susan J. Lambert, Julia R. Henly, and Jaeseung Kim (2019) “Precarious Work Schedules as a Source of Economic Insecurity and Institutional Distrust,” *RSF: The Russell Sage Foundation Journal of the Social Sciences* 5(4):218-261, at p. 226.

notice less than one week in advance (but more than one day).⁹⁸ Empirical studies conclude that flexibility in scheduling is more frequently available to married men, women with young children, and those who work long hours, and less frequently available to women without young children, non-whites, and those without college degrees.⁹⁹

A lack of flexibility is also particularly common in industries that hire workers similar to those that offer services on app-based platforms.¹⁰⁰ A recent survey of nearly 28,000 adults employed in the retail and food service industries at 80 large U.S. companies found that more than half, 51%, have their hourly schedule dictated entirely by their employer.¹⁰¹ Another 33% have some input into their scheduling, but not complete flexibility.¹⁰² Approximately 16% of these workers reported having two days or less notice as to their schedule, and only 37% had at least two weeks' notice.¹⁰³

2. *Evidence from Europe indicates that employment status would lead to reduced scheduling flexibility in the app-based economy*

Employment-like status has already been applied to app-based economy workers in some European jurisdictions, and although U.S. labor regulations differ, the results from these European experiments are generally consistent with economic theory. For instance, after Spain required employment-like status, ridesharing and courier services turned to working with third-

⁹⁸ *Id.*, at p. 237.

⁹⁹ Lonnie Golden (2008) “Limited Access: Disparities in Flexible Work Schedules and Work-at-home,” *Journal of Family and Economic Issues* 29:86-109, at p. 86 (“Women and African-Americans possess less access to flexible work schedules, even when controlling for most job characteristics. Married men have more access, but only if they are parents, and mothers only if they have pre-school-age children. Workers with part-time or long hours gain far greater access.”). *See also* Nicole Maestas, Kathleen J. Mullen, David Powell, Till Von Wachter, and Jeffrey B. Wenger (2018) “The Value of Working Conditions in the United States and Implications for the Structure of Wages,” NBER Working Paper 25204, at pp. 13-14 (reporting the results of a 2015-2016 nationally-representative survey and concluding that “non-whites have less control over their schedule” and “respondents with a college degree are more likely to report that they can adapt their hours (within limits) than those without a college degree (48% vs. 24%).”). *See also* Susan J. Lambert, Peter J. Fugiel, and Julia R. Henly (2014) “Precarious Work Schedules among Early-Career Employees in the US: A National Snapshot,” University of Chicago School of Social Service Administration, at p. 16 (“Short notice and a lack of schedule control are significantly more common among workers of color than among White workers.”).

¹⁰⁰ A recent survey of Massachusetts app-based economy workers found that “[w]hen asked what type of job or industry they would seek work in if app-based driving work were no longer available to them, drivers’ responses clustered much more tightly. Drivers perceived three fields as their most likely alternative options: food service (including restaurants and bars) at 15%; brick-and-mortar retail (13%); and warehouse work/driving for a distribution facility (13%).” BW Research Partnership (2022) “Hourly Earnings of App-Based Rideshare Drivers and Food Delivery Workers in Massachusetts,” available at <https://yesformassdrivers.org/wp-content/uploads/2022/03/MA-App-Driver-Earnings-Report-FINAL.pdf>, at p. 11.

¹⁰¹ Daniel Schneider and Kristen Harknett (2019) “Consequences of Routine Work-Schedule Instability for Worker Health and Well-Being,” *American Sociological Review* 84(1):82-114, at pp. 91, 99.

¹⁰² *Id.*, at p. 99.

¹⁰³ *Id.*

party fleets that employed workers instead of the flexible arrangements with independent workers they previously relied upon. An advocacy letter from a group of drivers states, “platforms have chosen diverse paths to react to the new law, e.g., by employing couriers partially, by collaborating with independent courier fleets, or, as in the case of Deliveroo, by leaving Spain entirely. As a result, there are less platforms for couriers to partner with, and much fewer jobs for us to take. Based on our information, more than 8,000 couriers in the sector are now out of work ... [w]e have lost the ability to work flexibly with the platforms and apps we used before.”¹⁰⁴

A similar regulation in Geneva, Switzerland had consistent results. A study by Uber found that:¹⁰⁵

In September 2020, a series of court rulings led Uber Eats to change its way of operating in the Swiss canton of Geneva, from partnering with independent contractors to working only with a third-party fleet operator that hires couriers as traditional, scheduled employees who have to work fixed shifts ... we see that work opportunities remain significantly depressed, with an estimated 67% reduction in workers in the year after the transition ... As soon as Geneva couriers are reclassified on September 1st, 2020, the two lines diverge sharply, as Geneva’s deliveries are immediately reduced by 34% week-over-week. Over the year that follows, we see that Geneva deliveries do not recover relative to Lausanne. Instead, deliveries remain significantly lower, ending the year at 42% less than the estimated counterfactual.

In sum, the evidence is consistent with economic theory; reclassifying app-based economy workers as employees is likely to lead to significantly reduced scheduling flexibility, to the detriment of workers who often value this flexibility greatly.

V. Summary of Background and Qualifications

Kathryn Shaw is The Ernest C. Arbuckle Professor of Economics at the Stanford University Graduate School of Business, and a Senior Fellow at the Stanford Institute for Economic Policy Research.

Her research focuses on managing talent in high performance organizations and how firms attract and build talent in knowledge-intensive industries. More broadly, Professor Shaw studies how companies invest in human resource management practices aimed at improving the performance of workers. She is a co-developer of the field of “insider econometrics,” which uses internal (“inside”) company data to study worker performance and the impact of human resources practices.

¹⁰⁴ Asociacion Autonoma de Riders, Asociacion Profesional de Riders Autonomos, and Asociacion Espanola de Riders Mensajeros, “Follow Up EU Commissioner of Employment and Social Rights.”

¹⁰⁵ Harry Elworthy and Alison Stein, “Assessing the impact of courier reclassification in Geneva 1 year on: restaurant demand and work opportunities fail to recover,” Uber Under the Hood, November 12, 2021.

Professor Shaw is the current Vice President of the Society of Labor Economists, and the incoming President of the Society.

Professor Shaw was previously the Ford Distinguished Chair and Professor of Economics at Carnegie Mellon University. She served on the President's Council of Economic Advisors between 1999 and 2001 and has also served as Visiting Economist at the Board of Governors of the U.S. Federal Reserve. She is the former editor of the *Journal of Labor Economics* and has served on the National Science Foundation Advisory Panel.

She completed her PhD in economics at Harvard University in 1981 and was awarded an honorary doctorate from Maastricht University in 2019.