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Amazon Drives Low Wages:

The Unraveling of Workplace Protections for Delivery Drivers

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Executive Summary

231 packages delivered per second globally, 1.6 million packages delivered per day in the U.S., 9 billion items delivered same-day or next-day per year. Package deliveries to 83% of US households in 2024. No matter how you count it, Amazon has transformed the way people shop, upending traditional brick-and-mortar retail stores. But it's not just the retail side of Amazon that has upset existing norms and business models.

Behind that endless stream of packages are over a million working people in Amazon fulfillment centers and delivery vehicles. Through its growing dominance in retail, Amazon has also eclipsed the two major companies in the delivery business—UPS and FedEx.

For nearly a century, driving delivery trucks has been a pathway to the middle class, as embodied by unionized jobs at UPS. The UPS model thrived competitively for decades providing its workforce good union jobs that allow drivers to make a decent living and build a secure life. In contrast, Amazon has embraced a very different model that effectively removes it as the direct employer of any of its delivery drivers, creating downward pressure on the wages and working conditions of delivery drivers throughout the industry.

Between rosy press releases from Amazon on the one hand and troubling exposes from investigative reporters on the other, a comprehensive picture of conditions facing these workers has been hard to capture. Part of the reason is that there is little data that allow us to look inside the black box of workers' experiences at specific large firms like Amazon, UPS, and FedEx. The experiences of drivers are especially obstructed because of the indirect relationship that Amazon deliberately creates with its drivers.

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We draw on uniquely detailed data from the Shift Project on wages, hours, benefits, and workplace surveillance collected directly from delivery workers and fulfillment center workers at Amazon, UPS, and FedEx, allowing us to provide the first direct comparisons across workers in similar roles at these firms. These comparisons highlight the costs of fissured work for Amazon drivers and the rewards of collective bargaining for UPS workers.

- **Mean hourly wages are significantly lower for delivery workers at Amazon than at UPS and FexEx.** Wage gaps are especially large between the delivery workers at Amazon ($19/hr) and the unionized drivers at UPS ($35/hr).

- **Unionized UPS drivers have a clear pathway to upward mobility and Amazon drivers do not.** At UPS, wages increase sharply with job tenure, starting at $21/hr and reaching nearly $40/hr for the more than half of all UPS drivers who have been with the company for at least ten years. At Amazon, wages start at $17/hour and don't increase with tenure, and nearly half of workers have less than a year on the job.

- **Between lower wages, more unstable schedules, and fewer fringe benefits like employer-sponsored health insurance, paid sick leave, and paid vacation, Amazon drivers struggle to make ends meet.** 26% report a time in the last month when they were hungry because they couldn't afford enough to eat and 33% report an inability to cover utility bills. Amazon drivers stand out as uniquely precarious.

- **Amazon drivers, like workers in Amazon fulfillment centers, are subject to intense workplace surveillance and speed tracking.** 60% of both Amazon drivers and fulfillment center workers reported a leaderboard at work, 60% of both groups received frequent feedback on the speed of their work from a technological device, and more than two-thirds say that their employer monitors the quality of their work using technology. That degree of technological surveillance and tracking far outpaces what UPS and FedEx workers are exposed to.

All of this matters not just for Amazon drivers, but because of Amazon's sheer size, its use of drivers who are not their direct employees is contributing to the erosion of wages and conditions in the entire delivery industry and beyond. Employees have labor law protections that independent contractors do not have. One of these is the right of workers to unionize, which UPS drivers enjoy.

Amazon, by contrast, does not use any employees to deliver its products. Instead, Amazon Logistics, its transportation division, relies on two methods to deliver the majority of its shipments: Amazon Flex, a platform-like system that relies on independent contractors, and Amazon DSP, a franchise-like system that uses subcontractors to deliver products following Amazon's clearly defined specifications (including its logo and branded vehicles). DSP subcontractors are almost all nonunion—and the company has cut ties with DSPs where they have attempted to unionize.

By building an online retail empire with the capacity to deliver the majority of its own shipments, Amazon's expansion continues. UPS, by contrast, has seen drops in revenue, market share of shipments, and stock value. Given the conditions for Amazon drivers documented in this report, this does not bode well for the industry or for workers, especially those who make deliveries for a living.

Evolution of the Retail Sector

Conditions for workers in retailing have been shaped in part by competition in the industry and, in particular, by the succession of companies that have dominated the sector at different points in time. Thousands of small, local distributors of specialized products at the turn of the last century were wiped out by the rise of the A&P, a retailer that provided customers with a variety of goods at one outlet and used its scale and buying power to offer lower prices than small competitors.[1]

The A&P model foreshadowed the 20th century retailing era where national companies competed to provide distinct customer groups with an ever-growing variety of goods under one roof: high-end fashion-conscious shoppers at stores like Lord & Taylor, Marshall Fields or Macy's; budget-conscious shoppers at department stores like Federated and Filenes, and customers seeking low prices via mass merchants like Kmart.[2]

In the 1980s, Walmart revolutionized retail again by focusing on reducing its costs and increasing the turnover of its goods through data-driven "lean retailing" that minimized exposure to inventory risk while using (as had A&P before) its increasing scale to reduce the prices it paid to suppliers.[3] As in prior waves of disruption, the Walmart model quickly supplanted older retail markets, bringing down venerable department stores, wiping out local and regional stores, and even restructuring other retail sectors that had been spared major disruption in the past, such as seen in the rise of Home Depot in home improvement. Data- and inventory-focused business models built at scale became the norm, epitomized by Walmart becoming the largest private sector employer in the US and its low wage, just-in-time business model spreading across the sector.[4]

Some have called this phenomenon "creative destruction"—the dramatic replacement of one business model with another. But there is nothing "creative" about the process by which a company exercises outsized power to the detriment of workers and small businesses. Enter a new player: Amazon. With the entry of Amazon on the scene and its meteoric rise, it was not just retail that experienced dramatic changes; Amazon revolutionized home delivery. Although always a feature of retailing (Sears Roebuck catalogs; Lands End and L.L. Bean specialty clothing), the emergence of Amazon transformed the way consumers purchased goods, from its origins in selling books in 1994 to the present where it has become a virtual retailer for every conceivable segment of consumer goods (not to mention services). Like A&P and Walmart before it, its business model was built around providing consumers with diverse products at affordable prices. But the attractiveness of doing so via the web and without brick and mortar outlets (an advantage amplified by the COVID-19 pandemic) led it to rapidly become the second largest private US employer at 1.6 million employees in the world in 2024 (second only to Walmart at 2.1 million).[5] And, just as A&P and Walmart defined core business model principles for those left standing, Amazon forced competitors across retail sectors (including Walmart) to embrace home delivery.

From Retailing to Package Delivery

Moving products from suppliers to retail outlets requires logistics and transportation. The logistics and transportation functions so basic to retail

1. Marc Levinson, *The Great A&P and the Struggle for Small Business in America.* (NY: Hill and Wang, 2011).

2. Daniel Raff and Peter Temin. "Sears, Roebuck in the Twentieth Century: Competition, Complementarities, and the Problem of Wasting Assets," in Naomi Lamoreaux, Daniel Raff, and Peter Temin, eds., *Learning by Doing in Markets, Firms, and Countries* (Chicago: University of Chicago Press, 1999).

3. Nelson Lichtenstein, *The Retail Revolution: How Walmart Created a Brave New World of Business.* (NY: Metropolitan Books, 2009).

4. Frederick Abernathy, John Dunlop, Janice Hammond and David Weil. *A Stitch in Time: Lean Retailing and the Transformation of Manufacturing.* (NY: Oxford University Press, 1999).

5. "Largest employers in the U.S.", June 2025. Financecharts.com.

operations historically resided under one employer's roof. Walmart perfected the art of using state-of-the-art distribution centers to replenish goods at stores through its logistics operations so they could be unloaded and stocked immediately on the floor, reducing its exposure to holding unsold inventory. Like many major retailers, Walmart's workforce includes sales associates, cashiers, and store managers and a workforce in its distribution centers, all critical to providing just-in-time delivery to its retail outlets.[6] With inventory management as the centerpiece of its competitive strategy, Walmart also employs truck drivers for its fleet. And it pays them an estimated median earnings of $110,000 in 2024.[7]

Amazon faces a related but different challenge: Given its model of providing direct home delivery, it needs to efficiently and rapidly move products from suppliers, through its formidable "fulfillment centers" (FCs, its term for distribution centers) and then out to individual residences or business customers. In 1999, it operated only seven FCs in the US, growing to about forty by 2012. Amazon located its FCs primarily in rural locations in states and localities with lower labor costs and tax rates.[8] But as the retailer grew rapidly, it expanded its FC network to include locations closer to major areas of demand. Using an increasingly specialized system of distribution sites as collection points for different types of products, Amazon relied on national transportation companies that had long specialized in home delivery to provide the final mile of delivery to customers rather than hiring delivery employees directly: United Parcel Service (UPS) for standard deliveries; FedEx[9] for more rapid turnover; and the US Postal Service for rural and lower population density end points.

As Amazon expanded its product mix and transformed from simply the world's largest online bookseller to a virtual store of everything, this dependence on other companies for customer delivery grew too. However, its dependence on others—fueled by its core mission to provide affordable prices, wide selection and dependable shipping—became problematic for a company increasingly focused on fast and efficient delivery.

With the introduction of the Amazon Prime program providing customers free and faster deliveries in exchange for paying an annual fee, the company sought to deliver products on weekends. But UPS did not provide weekend delivery. FedEx did not adjust its delivery protocols to Amazon's standards. Though both companies benefited from Amazon's growing scale, Amazon remained one of many customers. In 2013, after winter weather and surging demand

6. Although a portion of distribution workers are direct employees of Walmart, many work under the auspices of third party logistics companies who, in turn, hire labor contractors to staff positions. Retailers have long used contract workers to add staff during peak periods (in particular the holiday season), but Walmart and other retailers now use the practice to fill a significant portion of their staffing needs (David Weil, *The Fissured Workplace*. Cambridge, MA: Harvard University Press 2014), pp. 163-165).

7. Rachel Premack, "Why Walmart Pays its Truck Drivers Six Figures." Freight Waves, 1/23/24.

8. Brad Stone, *Amazon Unbound*. (NY: Simon and Shuster, 2021).

9. FedEx represents an interesting in-between business model. It was a pioneer in fast-package delivery (becoming major competitors to UPS and USPS), but has been in business as a delivery company long before Amazon. FedEx operates like a franchised system of delivery, with its drivers classified (by the company) as independent contractors. Yet despite this status, it is a highly integrated company that depends on sophisticated logistic systems coordinating the delivery, practices, and operating parameters for all of its franchised operators. although providing the franchisees greater discretion in their work than DPS contractors). Not surprisingly, this has led to a long history of misclassification litigation. Its distribution center and delivery practices therefore are more integrated than Amazon, but does not act as a fully integrated company in the same way as UPS.. For a discussion of FedEx litigation, see Jill Fisch, "How Do Corporations Play Politics? The FedEx Story," *Vanderbilt Law Review*, Vol. 58 (2005), pp. 1495-1525; Tina Quinn and Sangshin Pae, "The Case of the Missing Employees: The Saga of FedEx," Academy of Business Research, Vol. II, (2011), pp. 34-43; Veena Dubal, "Winning the Battle, Losing the War?: Assessing the Impact of Misclassification Litigation on Workers in the Gig Economy," *Wisconsin Law Review*. (2017), no.1, pp. 739-801.

thwarted delivery of thousands of Amazon holiday deliveries routed through UPS's Louisville hub, the company ramped up its efforts to take control of the last mile of delivery on its own.[10] In so doing, Amazon directly entered the shipping and delivery business. In addition to predatory pricing tactics, this vertical integration of retail and delivery has stifled market competition and facilitated Amazon's rapid growth. These practices have increasingly gone unchecked in recent decades as the prevailing legal doctrines of antitrust regulation have become narrower (Khan 2017).

As CEO of Amazon, Jeff Bezos reportedly said that a "disgruntled and entrenched hourly workforce represented one of the biggest threats to the company."[11] This outlook led him to promote FC policies for over a decade that would ensure that workers who failed to advance in the company stayed for a maximum of three years. It was also reflected in Amazon's efforts to undermine unionization of its FCs, including its epic battles with workers at its JFK8 FC beginning in 2021, a major facility in New York City where Amazon workers were successfully organized for the first time.[12]

In keeping with this approach, Bezos and top Amazon executives resolved not to create a new group of employees at Amazon to take on the last mile delivery work. To circumvent direct employment, they devised two models to allow home delivery, under Amazon's tight control and management, but without direct employment: DSP and Amazon Flex.

The DSP (Direct Service Partners) program hires independent companies for delivery. Unlike Walmart truck drivers, DSP workers were employees of whatever small company received the contract to provide delivery—even though all DSP work would come from Amazon and be deployed under explicit direction from the company's network of FCs. Amazon sets DSP prices, determines delivery standards, and manages its final mile costs by deploying the DSP fleet according to its sophisticated logistics algorithms. And the company brands the entire experience by leasing DSP contractors Amazon-branded vehicles and providing Amazon uniforms. DSP contractor status, however, is designed to insulate Amazon from directly paying employees and being responsible for compliance with state and federal employment laws. What is more, the smaller scale of individual DSPs makes it more difficult for unions to organize since the employer of record is an individual DSP rather than Amazon as a company. As a result, unlike UPS and the US Postal Service, Amazon's delivery system is non-union. In several high profile cases where the International Brotherhood of Teamsters (IBT or Teamsters) have successfully organized an individual DSP, Amazon has gone so far as to break agreements with those DSPs (usually by manufacturing an unsatisfactory performance excuse, effectively putting them out of business and thwarting unionization).[13]

Amazon Flex serves as the second delivery method used by Amazon to provide same day and next day deliveries including of groceries from Whole Foods, acquired in 2017. Amazon Flex draws on a platform business model similar to Uber, Lyft or DoorDash. Flex drivers bid for a bundle of packages to deliver using an Amazon platform and deployed from specialized FCs. Drivers are paid a lump sum for delivering the packages within a set time period using their own vehicle. Like DSP drivers, the drivers are not classified as employees of Amazon; but unlike DSP, they are no one's employees. That means the costs of delivery—gas, insurance, upkeep, tickets and tolls, and their own time—are their responsibility. And as nominal independent contractors, they are not covered by employment or labor laws (including workers compensation in the event drivers are injured in the course of delivery).[14]

10. Stone, pp. 226-228.

11. Journalist Brad Stone of Bloomberg News provides this description in his book, although Amazon later denied that Bezos said it (see Stone, p. 219).

12. Steven Greenhouse, "Amazon Fired Him: Now He's Trying to Unionize 5000 Workers in New York." *The Guardian*, June 4, 2021; Sara Ashley O'Brien, "Amazon Workers at New York Warehouse Vote to Form Company's First US Union." *CNN Business*, April 1, 2022.

13. See Peter Eavis, "The Delivery Business Shows Why Unions are Struggling to Expand." *The New York Times*, May 27, 2024. Amazon's actions have led the Teamsters to file numerous unfair labor practice charges against Amazon with the National Labor Relations Board and engage in strikes to call attention to the practices. See Ellen Ioanes, "The People who Deliver Your Amazon Packages are Striking. Here's Why." *Vox*, December 20, 2024.

14. The classification by Amazon Flex drivers as independent contractors is part of the highly contentious debate on worker employment status in many platform, "gig" and brick and

UPS and traditional delivery

This fissured model of delivery at the heart of Amazon's business stands in dramatic contrast to the employment model at the United Parcel Service (UPS). Founded in 1907 in Seattle, Washington, UPS began as a messenger service in an era where few residences had telephone service and communication systems that did exist were inefficient (two phone companies with no direct communication). Employees would dispatch messages, run errands, deliver packages, and deliver food from local restaurants. Foreshadowing future business models, requests were collected and responded to 24 hours a day, 7 days a week. As telephones became ubiquitous, the company shifted to package deliveries, focusing increasingly on retail store and business customers.[15] It gradually expanded to other major cities on the West Coast and then to the East Coast in 1930.

As a premier provider of delivery services to businesses and residential customers, UPS had long faced the dilemma of finding ways to efficiently handle the logistics problems of connecting suppliers, businesses, and other entities to a decentralized network for purchasers. Like Walmart, this required UPS to develop sophisticated distribution center networks of varying size and capacity located near both the origins of deliveries and, like Amazon, an equally efficient network to distribute those packages to delivery drivers. UPS not only hired thousands to drive its trucks and work in its distribution facilities, it hired pilots to fly the fleet of planes critical to time-sensitive deliveries.

UPS built this system by directly employing workers in its distribution operations, airfreight and delivery jobs. And, like many major employers of the 20th century, it is a union employer. Its workforce has been represented by labor unions, predominantly the Teamsters who first organized the company in 1916.[16] Currently, the company employs 300,000 workers who are members of the union, making it the largest single employer of Teamsters (about one-third of the union's members work for UPS). Separate collective bargaining agreements between UPS and the Teamsters cover warehouse workers and delivery drivers.[17]

UPS's employment model provides strong incentives to operate its distribution centers and fleet of delivery vehicles as efficiently as possible. And, since drivers are covered by federal and state employment laws, they also have incentives to reduce injury and illness risks associated with delivery.[18] UPS has invested heavily in data systems to optimize delivery schedules and to reduce exposures to injuries sustained in driving, lifting and package delivery.[19]

mortar industries. For an overview, see David Weil, "What's a 'Gig' Job? How It's Legally Defined Affects Workers Rights and Protections." *The Conversation*, January 9, 2023.

15. James Warren, *United Parcel Service*, www.HistoryLink.org/United Parcel Service, (here) accessed 6/5/25.

16. Greg Niemann, *Big Brown: The Untold Story of UPS*. (Jossey-Bass, 2007).

17. UPS's approximately 3000 pilots at UPS are represented by the Independent Pilots Association (IPA). The IPA is not affiliated with the largest pilots union in the US, the Air Line Pilots Association (ALPA) or with the AFL-CIO.

18. The recent (2023) negotiation between the Teamsters and UPS involved issues in the company's distribution centers, arising from the company's decision to use a growing number of part-time workers. According to the Teamsters, between 1993 and 1997, only 8,000 of the 46,000 jobs covered by the collective agreements between 1993 and 1997 were full time. The 2023 agreement addressed this issue by requiring the company to create 7,500 full time jobs and raise wages of part-time workers by over 30 percent. See Steven Greenhouse, "Analysis: Teamsters, U.P.S. Fighting Over Part-Timers," *The New York Times*, 8/5/97; Lauren Kaori Gurley, "UPS, Teamsters Reach Agreement, Averting Strike." *Washington Post*, 7/25/23.

19. ORION (On-Road Integrated Optimization and Navigation) was released in 2013 that uses AI-assisted algorithms to suggest driver routes based on addresses, traffic, weather and specific delivery requirements. However, drivers have the ability to modify suggested routes based on their even more real time knowledge of the logistics of moving packages in their truck (e.g., getting particularly cumbersome packages out of the way earlier to avoid tripping on them) or avoiding left turns in traffic to lower the risk of accidents. See Christopher Mims, *Arriving Today*, (2021), pp. 280-285.

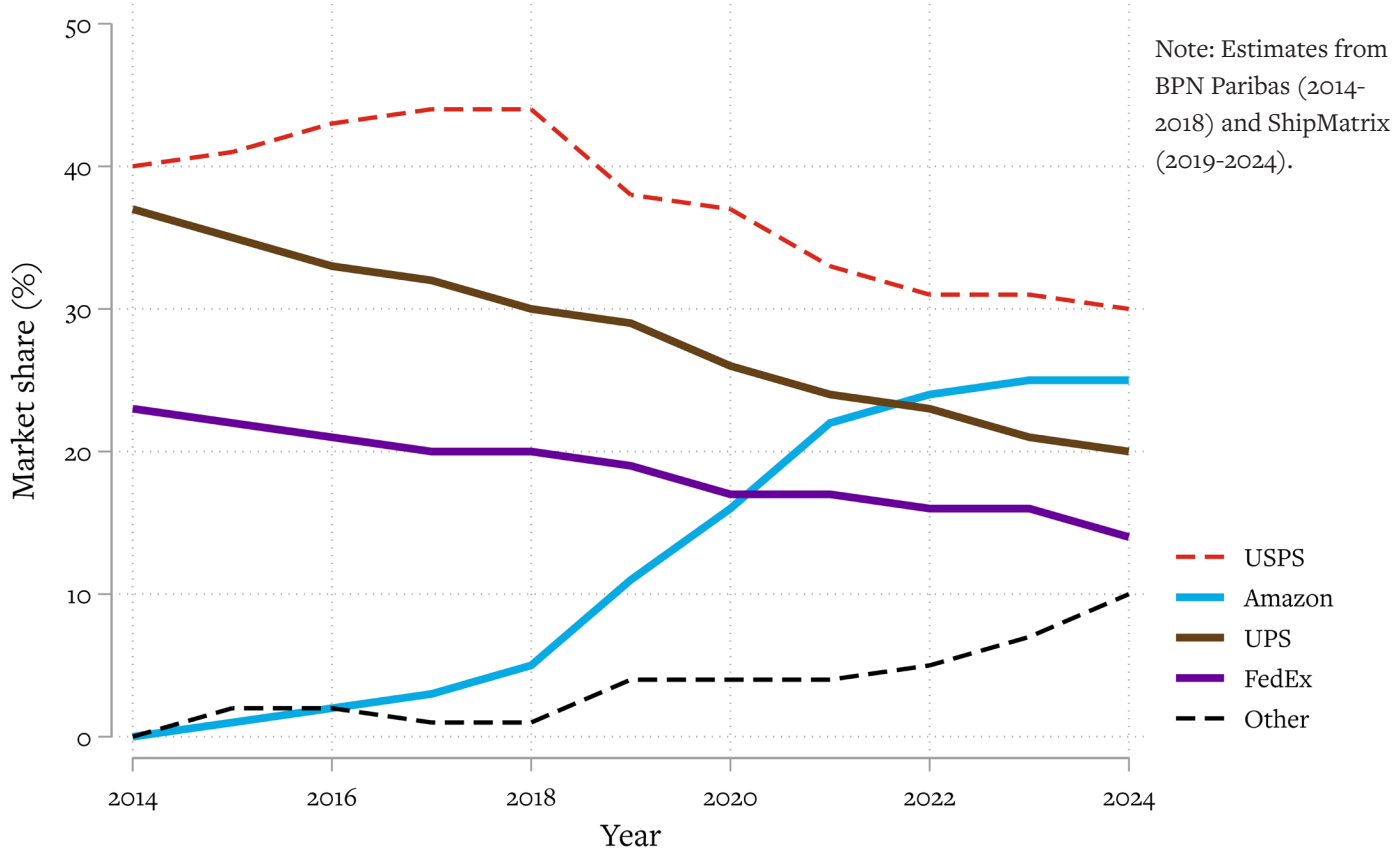
Amazon Ascendant

As Amazon has leaned into DSP and Flex options, the firm has gradually phased out its use of other companies for deliveries, parting ways with FedEx in 2019 and dramatically reducing its use of UPS and the US Postal Service. By becoming its own provider of last mile transportation, Amazon has changed the competitive landscape for the delivery sector. There are many measures of its phenomenal growth.

Amazon's 40 FCs in 2012 quadrupled to 174 by 2017. The explosive growth caused by the pandemic led to further expansion to 638 FCs by 2020 and 908 by 2022, increasing its capacity by 200 million square feet.[20] To provide a sense of scale, Amazon added 79 million square feet of FC capacity in 2022 alone and planned to add 63 million additional square feet in 2023. Though this represented a slowing in growth, its single year of expansion was equivalent to one-half of the entire distribution capacity of Walmart.

Substituting its own non-employee drivers for those provided by UPS and FedEx has led to exponential growth of Amazon as a package delivery company.[21] By 2023, Amazon for the first time delivered more packages than UPS, making it the second largest delivery company, surpassed only by the US Postal Service. **Figure 1** depicts this ascendancy: Amazon accounted for less than 2% of all packages delivered in 2015 versus UPS with 35%. By 2024, Amazon's share of packages delivered approached 30%, while UPS had fallen to nearly 20%.

Figure 1. Domestic Parcel Volume Market Share by Firm, 2019-2024



Note: Estimates from BPN Paribas (2014-2018) and ShipMatrix (2019-2024).

20. Emma Cosgrove, "Amazon May Have Slowed its Warehouse Expansion, but it Still Added Space Equal to half of Walmart's Distribution Capacity this Year." Business Insider, 12/16/2022.

21. Amazon, through its service now called Amazon Air, created a separate contracted relationship to provide its growing air shipment needs: "Like Amazon's parallel initiatives on the ground, [the company's] plan called for controlling air freight while not necessarily owning it or exposing the company to the dangerous messiness of the aviation industry." (Stone 2021, p. 234).

Delivery Transformed and Job Quality Under Threat

Given the millions of workers in the retail sector, transformations like those described above have consequential impacts on the organization of work, the wage and benefit practices of employers and the quality of jobs and work. Many academic researchers, policy makers and advocates have criticized the Walmart "low road" employment model, while defenders of it praised the model as an engine of employment and economic growth. Critics and defenders, however, agreed that Walmart's workplace practices mattered both because of the scale of the enterprise and its ripple effects on the practices of retailers who competed against it.

Similarly, the ascendancy of Amazon matters in important ways to the structure of work, beyond the fact that it is the second largest employer in the US. By building a new model of retailing, premised on the rapid delivery of products directly to homes at ever increasing speed, Amazon not only transformed retailing, but it has also unraveled the workplace practices of the transportation and logistics sector. And it has done so by applying the fissured recipe of marrying core competency to outsourced work in new ways. As a result, we are seeing head-to-head competition between a tried-and-true model premised on employment, collective bargaining and long-term employer-worker relationships, exemplified by UPS, against a new model built on independent contracting and work relationships divorced from the legal structure of employment created under federal and state law that is at the core of Amazon's business.

How does this competition between systems play out? What are the consequences for entry wages and the profile of earnings? Do access to benefits and scheduling practices differ across these models? How do the two work systems monitor, supervise, incentivize and penalize work? How do these practices come together to create an overall quality of jobs and how are workers affected by them in terms of satisfaction, household financial status, and health? The answers to these questions matter for the more than two million people who work directly for these companies. But they matter much more broadly because it will affect the labor market and work practices of these sectors—and other sectors that might choose to adopt similar practices.

The treatment of Amazon workers has attracted investigative research in recent years, although its scope has been somewhat limited. Most prior research in this area has focused primarily on pain and injuries in Amazon warehouses (e.g., Gutelius and Pinto, 2023; Tung et al., 2024; NELP, 2020; Senate HELP Committee, 2024; UNI Global Union, 2023), consistently finding that extensive workplace surveillance and a relentless emphasis on productivity have produced high rates of injury and exhaustion. Other job quality and worker wellbeing outcomes have been comparatively underexplored, although Tung and Lathrop (2023) highlight how compensation at Amazon lags behind industry standards and Gutelius and Pinto (2024) show that many Amazon workers are consequently vulnerable to severe material hardship and reliance on public and private assistance. These existing quantitative analyses have mostly been restricted to fulfillment center workers. Qualitative studies of Amazon delivery drivers have provided valuable insights into their day-to-day experiences (e.g., Alimahomed-Wilson and Reese, 2020), but there is a dearth of quantitative data on these workers and their jobs, presumably in part due to the highly fissured nature of Amazon's delivery network. The existing literature lacks thorough examinations of job quality at other major logistics firms, namely UPS and FedEx, which offer valuable points of comparison to Amazon. Further, there is an absence of evidence on the disparities that exist between fulfillment center workers and delivery drivers at each of these firms, and more specifically, on how these disparities may vary between Amazon, UPS, and FedEx as determined by their distinct employment models.

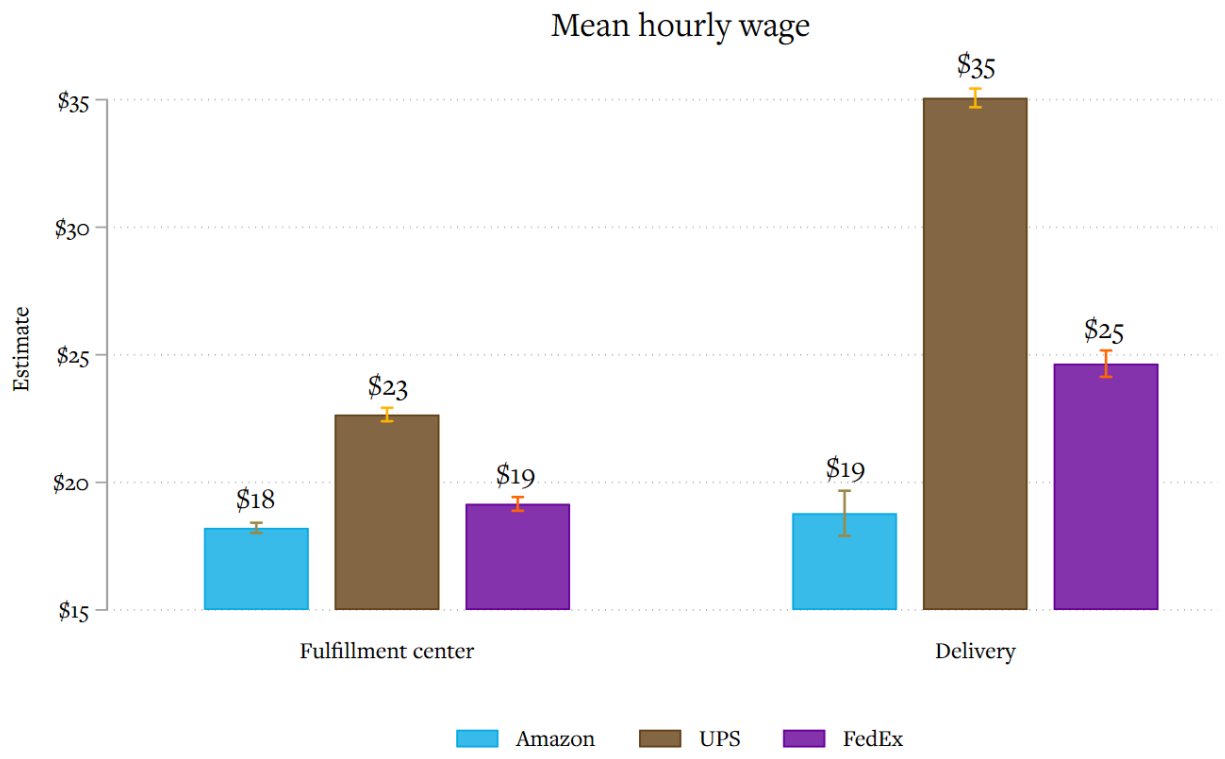
Many of the government sources of data used to analyze sectoral employment changes do not allow researchers to identify the specific company of respondents, or shield the identity because of confidentiality restrictions. The Shift Project survey

data collected directly from worker respondents at a cross section of major companies in the US allow us to directly identify companies and compare detailed answers regarding work practices of them. In the next sections, we utilize the ten waves of The Shift Project survey data collected between the spring of 2020 and fall of 2024. Only respondents who a) report working at Amazon, UPS, or FedEx and b) report working in a "delivery vehicle" or a "warehouse or fulfillment center" are included in our analyses. Our final analytic sample is comprised of 9,180 survey respondents: 2,983 Amazon workers (2,704 fulfillment + 279 delivery); 3,328 UPS workers (1,669 fulfillment + 1,659 delivery); and 2,869 FedEx workers (1,510 fulfillment + 1,359 delivery). An Appendix at the end of this report provides greater detail on the composition, characteristics, and other features of this unique data.

Waging a Living

Wages are often taken as the benchmark of job quality. While we reject such a singular focus, there is no denying that hourly wages matter a great deal. **Figure 2** shows that, on average, Amazon fulfillment center workers earn $18 an hour and Amazon drivers earn $19 an hour. Is that a lot or a little? It is more than double the federal minimum wage of $7.25 (though that is an increasingly market-irrelevant benchmark) and likely reflects Amazon's adoption of a voluntary $15/hour minimum wage in 2018 for fulfillment center workers.[22] Amazon extolls that policy for having had a "positive impact...on our employees, their families, and their communities." Compared to workers at other large firms in the service sector, such as retailers like Walmart and Target (both $16/hr), these wage levels are higher.

Figure 2. Mean Hourly Wages for Fulfillment Center and Delivery Workers by Firm



Note: Calculations from Shift Project data, 2020-2024.

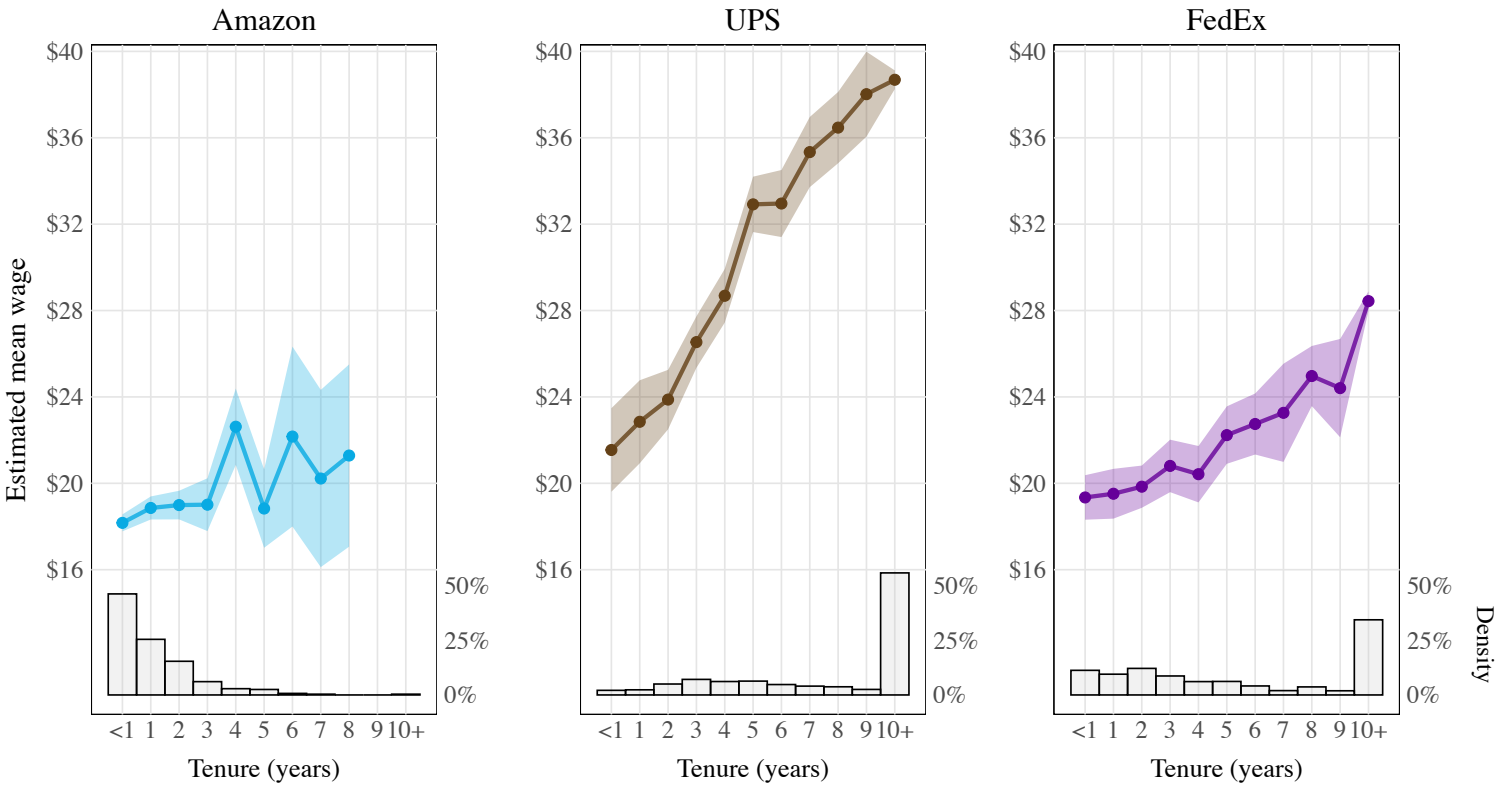
22. Derenoncourt, Ellora and David Weil. 2025. "Voluntary Minimum Wages: The Local Labor Market Effects of National Retailer Policies." *Quarterly Journal of Economics* 140(3): 1901-1958.

But, while Amazon functions as a substitute for those firms from a consumer perspective, from a worker perspective, Amazon employs hourly workers staffing fulfillment centers and making deliveries, not those working cash registers or doing customer service on the store floor.

How do wages at Amazon then stack up against what similar workers earn in fulfillment and delivery jobs? Here, rather than compare Amazon to retail jobs, we compare Amazon to the two other largest private delivery and fulfillment firms in the United States: UPS and FedEx. Figure 2 shows that among these three, Amazon's wages are the lowest, on average. In fulfillment centers, FedEx workers earn average hourly wages of $19/hr and UPS workers earn $23/hr, against $18/hr at Amazon. The gaps are far larger in delivery. FedEx workers earn $25/hr on average and UPS drivers earn $35/hr on average, against $19/hr at Amazon.

These average differences disguise what is perhaps the single most striking difference between Amazon on the one hand, and UPS and FedEx on the other. At UPS (and to a lesser extent FedEx) wages rise with job tenure. That's a somewhat wonky way of saying that longer serving workers earn more than new arrivals; seniority and experience matter and are rewarded. **Figure 3** shows how this plays out at our three firms for delivery drivers. UPS drivers start at about $21/hr. Wages rise steadily from there, reaching $32/hr with five years of service and approaching $40/hr for those with 9 years. Wages nearly double over ten years of driving at UPS. There is a similar, if less steep, gradient at FedEx. But, for Amazon drivers, there are essentially no wage returns to tenure on the job. Wages start lower, at about $17/hr, and increase very little over years of tenure driving for Amazon.

Figure 3. Wage Returns to Job Tenure and the Distribution of Job Tenure for Delivery Workers by Firm.



Note: Calculations from Shift Project data, 2020-2024. Histograms illustrate the relative frequency distribution of tenure for each firm.

But, that's only half the story. The blue, brown, and purple lines in Figure 3 show how wages change with job tenure at each of the three firms. The gray bars at the bottom of the chart show something else: the distribution of job tenure by firm, that is the share of workers who have been there a year, two years, five years, etc. These distributions differ dramatically by firm. While just 2% of UPS drivers have been with the firm for less than a year, that share is 46% at Amazon. While almost 56% of UPS workers have been at the firm for ten years or more, that share is effectively 0% at Amazon. While not a direct measure, these distributions imply dramatically different rates of turn-over at UPS and at Amazon. That should come as no surprise. UPS workers who stay on the job, as they overwhelmingly do, earn more and more each year. But Amazon drivers who stick around don't benefit, with wages ticking up only modestly. That is no accident. Rather, it appears to be a core part of the Amazon business model. A 2021 New York Times article on Amazon staffing noted:

> *Mr. Bezos did not want an entrenched work force, calling it "a march to mediocrity"... and saw low-skilled jobs as relatively short-term. Amazon intentionally limited upward mobility for hourly workers... Amazon's founder didn't want hourly workers to stick around for long, viewing a "large, disgruntled" workforce as a threat. Company data showed that most employees became less eager over time, and Mr. Bezos believed that people were inherently lazy.*

In sum, while starting wages are somewhat lower at Amazon than at UPS and FedEx, especially among delivery drivers, the most dramatic difference is that UPS and FedEx offer real internal ladders to upward mobility and workers overwhelmingly stay to climb those ladders at those firms, while at Amazon, a lack of wage growth and labor churning go hand in hand. Amazon workers can't get off the bottom rung, because that's effectively where the ladder ends.

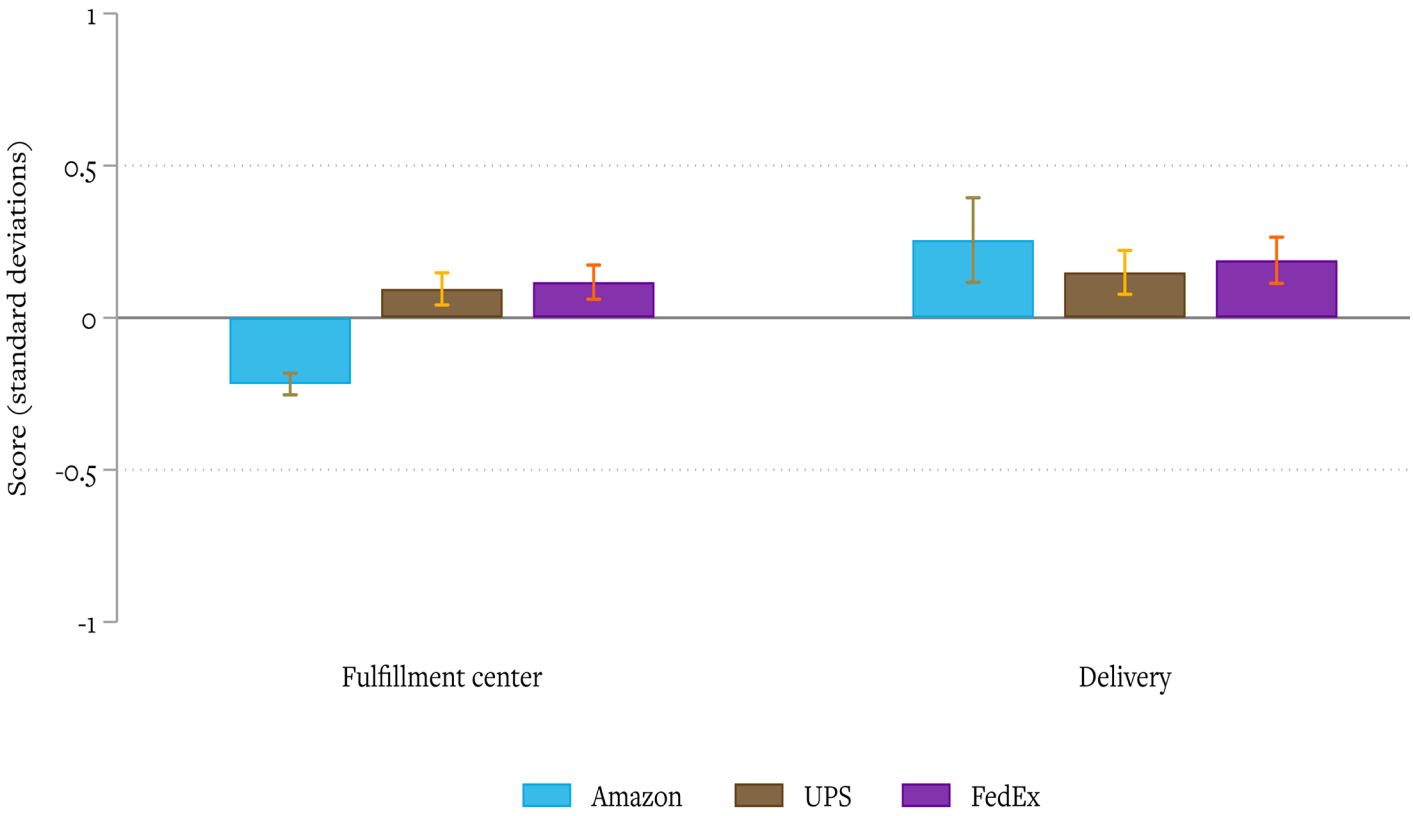
Schedules, Benefits, and Material Hardship: Fissuring in Action

Wages are a crucial ingredient in the recipe for good jobs, but they are far from the only factor. Workers in the service sector frequently cope with schedules that are unstable and unpredictable and over which they have very little control. Far from a day shift or even a regular non-standard night shift, workers often face schedules that vary week-to-week and day-to-day, with little advance notice and frequent last minute timing changes, cancellations, and on-call shifts. By increasing income volatility, making planning difficult, upsetting routines, and heightening stress, these practices get under the skin, negatively impacting the health and wellbeing of workers and their families.

Figure 4 shows how scheduling varies for workers at Amazon, UPS, and FedEx and between fulfillment center workers and drivers, using a composite measure of work schedule quality. UPS and FedEx workers experience moderate levels of schedule instability and unpredictability and these levels vary little based on whether workers are in the fulfillment center or driving delivery. For instance, approximately 15% of both UPS and FedEx workers in both fulfillment centers and delivery vehicles had at least one shift cancelled in the prior thirty days (detailed responses to questions on scheduling, benefits and technology can be found in the Appendix Exhibits).

The story is very different for Amazon, a difference that cuts both ways. On the one hand, schedules are **more stable and predictable** for Amazon fulfillment center workers than for their counterparts at UPS and FedEx. For example, while about 75% of UPS and FedEx fulfillment center workers have less than two weeks' notice of their schedules, that was true for only 40% of Amazon fulfillment center workers (see Appendix). Across the board, Amazon fulfillment center workers have greater stability and greater schedule control. This fits with both Amazon corporate policy and what we heard in interviews with

Figure 4. Schedule Instability for Fulfillment Center and Delivery Workers by Firm



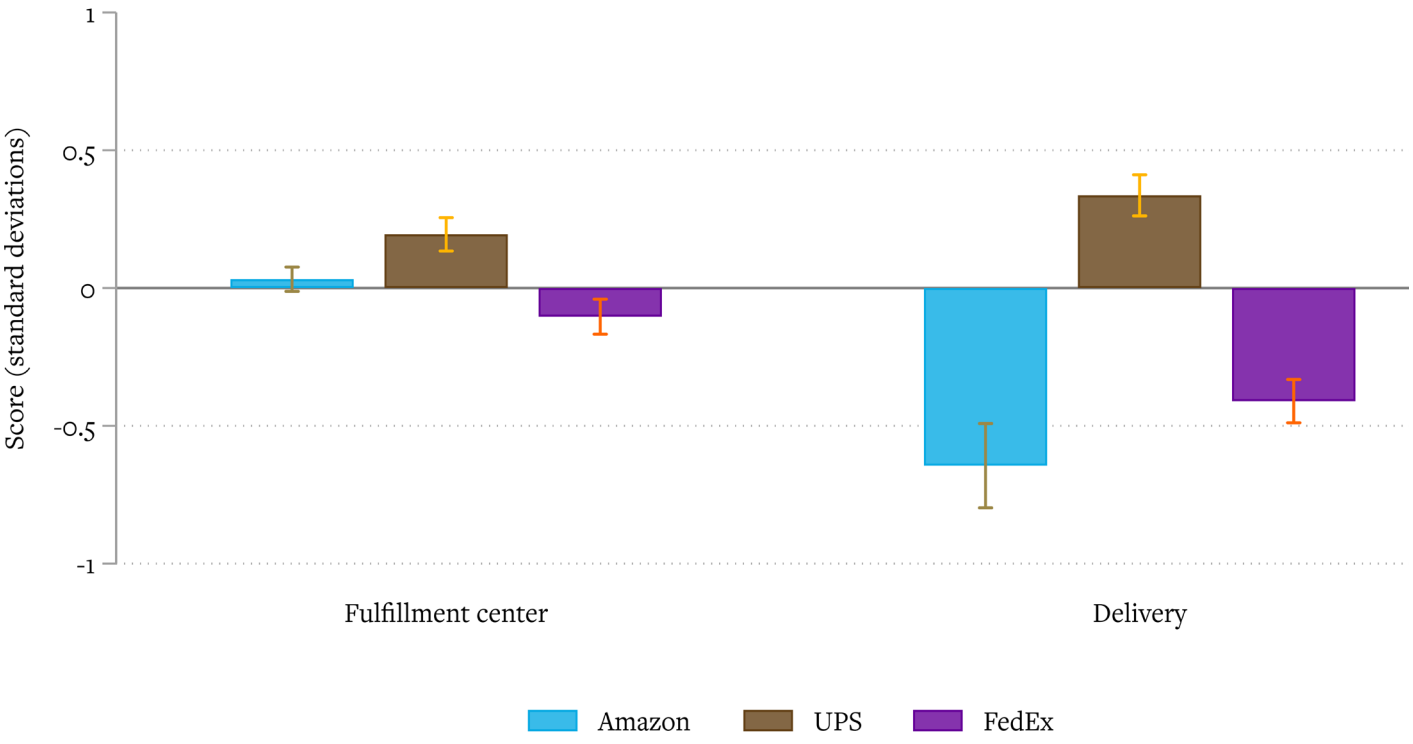
Note: calculations from Shift project data, 2020-2024. The principal factor analysis used to produce this figure draws on responses to a set of Shift survey questions to create an overall index reflecting work schedule instability. The result is a standardized scale based on the different items; scores can be interpreted as the number of standard deviations (a measure of variance) that the index for a company diverges from the mean for all three companies when pooled together. The pooled three-company mean includes both fulfillment center workers and delivery drivers.

hourly Amazon fulfillment center workers. As one 36-year old worker at an Amazon fulfillment center in New York told us, "*My schedule is basically stable, and it's like this all across the board in all* [*Amazon*] *fulfillment centers.*"

On the other hand, while schedules are similar between fulfillment and delivery workers at FedEx and at UPS, there are large differences in schedule quality between Amazon fulfillment center workers and Amazon drivers. While Amazon fulfillment center workers have comparatively stable and predictable schedules, our data show that Amazon drivers have the most unstable and unpredictable schedules. For example, about 15% of Amazon fulfillment center workers had at least one shift cancelled in the last month, on par with fulfillment center workers at UPS and FedEx and drivers at those two firms. But, nearly twice the share of Amazon drivers (30%) had at least one shift cancelled in the last month. In sum, these workers, delivering as Flex drivers or as employees of Amazon delivery franchisees, did not experience the benefits of schedule stability and predictability afforded to Amazon fulfillment center workers.

These differences between the direct employees in Amazon fulfillment centers and the fissured Amazon drivers—differences that are not found between drivers and fulfillment center workers at UPS and FedEx—are all the more stark when it comes to employer-sponsored benefits. Here, the order of the firms is a little different, but the key story is the same. For this analysis, in **Figure 5**, we look at workers' reports of access to a large suite of benefits: paid

Figure 5. Fringe Benefits Access for Fulfillment Center and Delivery Workers by Firm



Note: calculations from Shift project data, 2020-2024. The principal factor analysis used to produce this figure draws on responses to a set of Shift survey questions to create an overall index reflecting access to employer-sponsored benefits. The result is a standardized scale based on the different items; scores can be interpreted as the number of standard deviations (a measure of variance) that the index for a company diverges from the mean for all three companies when pooled together. The pooled three-company mean includes both fulfillment center workers and delivery drivers.

sick time, paid vacation, employer-provided health insurance, dental insurance, paid parental leave, and employer-sponsored retirement plan.

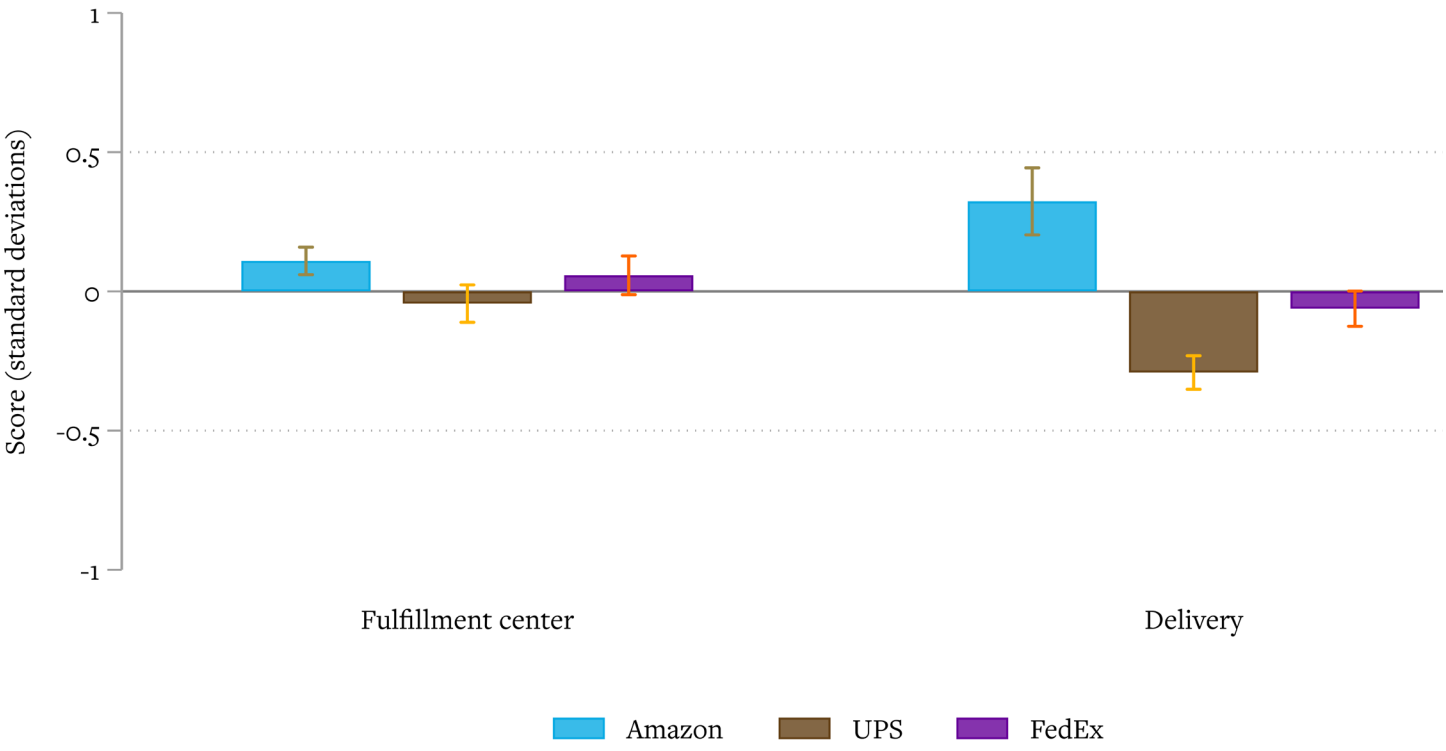
Unlike with scheduling, Amazon fulfillment center workers are not at the top of the heap when it comes to benefits. Instead, it is UPS drivers, followed closely by UPS fulfillment center workers, who report the highest rates of benefits access. For instance, almost 100% of UPS workers report access to paid vacation, health insurance, and dental insurance and upwards of 80% reported a retirement plan. FedEx workers lag behind UPS, both in fulfillment centers and in delivery.

But, as with scheduling, what is perhaps most telling is that while benefits access is *similar* across fulfillment center and delivery workers at FedEx and UPS, it is strikingly *different* across fulfillment center workers at Amazon and delivery drivers at Amazon.

For example, about 70% of workers at UPS and FedEx report access to paid sick leave, whether they were in fulfillment centers or were in delivery. The share was a little lower for Amazon fulfillment center workers—about 60%—but was far lower for Amazon drivers—just 40%. The same story appears when it comes to paid vacation. Rates of access are fairly high: above 80% for all workers, except for Amazon delivery drivers who lag substantially behind.

Lower wages, more unstable schedules, and fewer fringe benefits: for Amazon drivers, it all adds up, or rather, doesn't add up in a way that would allow

Figure 6. Material Hardships for Fulfillment Center and Delivery Workers by Firm



Note: calculations from Shift project data, 2020-2024. The principal factor analysis used to produce this figure draws on responses to a set of Shift survey questions to create an overall index reflecting experience of material hardship. The result is a standardized scale based on the different items; scores can be interpreted as the number of standard deviations (a measure of variance) that the index for a company diverges from the mean for all three companies when pooled together. The pooled three-company mean includes both fulfillment center workers and delivery drivers.

drivers to make ends meet. Overall, 17% of UPS, FedEx, and Amazon workers told us that there was a time in the last month when they were hungry because they couldn't afford enough to eat. 22% report a time when they couldn't cover their utility bills. But these averages conceal striking variation. While rates of hunger hardship, utility non-payment, housing insecurity, and deferred medical care are similar between UPS drivers and fulfillment center workers and between FedEx drivers and fulfillment center workers, Amazon drivers have far higher rates of material hardship (**Figure 6**). 26% of Amazon drivers report hunger hardship and 33% an inability to cover utility bills. Just as with scheduling and benefits, while UPS and FedEx drivers and fulfillment center workers look very similar to each other, Amazon drivers stand out as uniquely precarious.

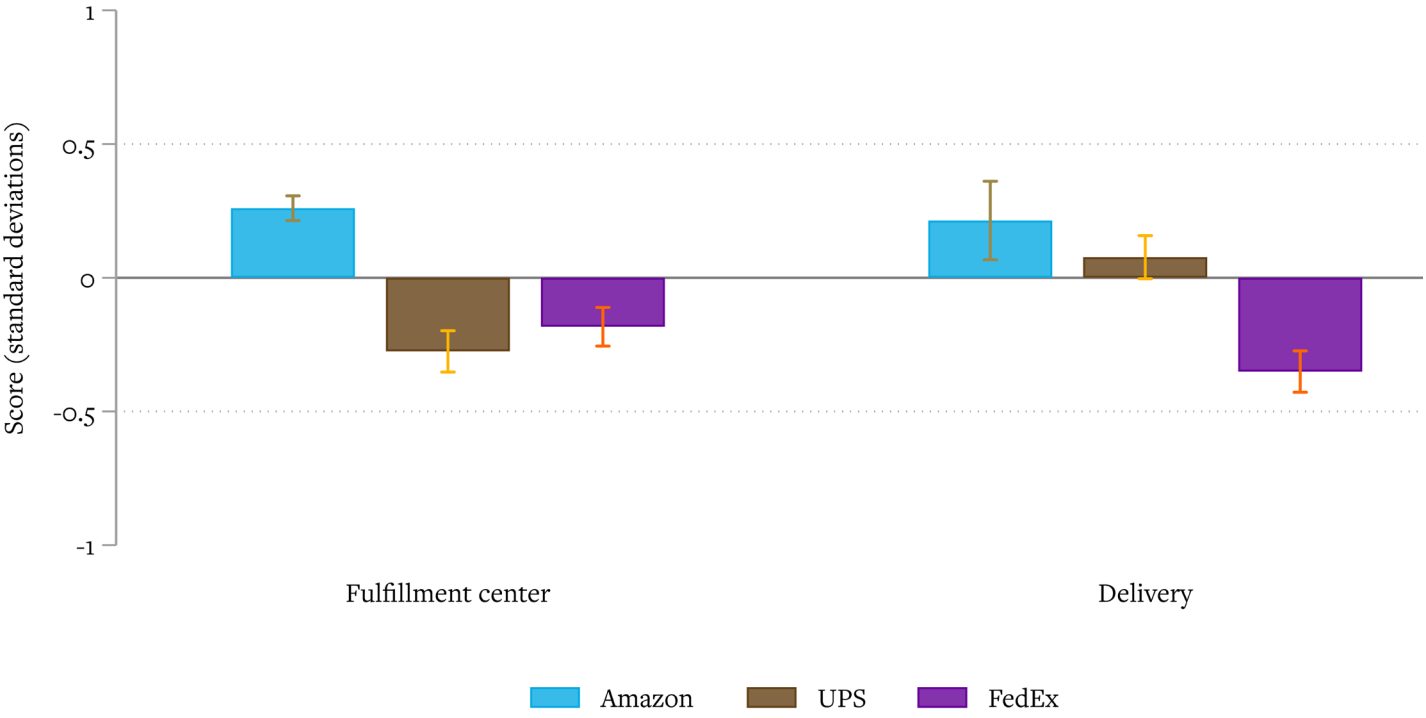
In sum, there is little differentiation in terms of scheduling and benefits between fulfillment center workers and delivery drivers at UPS. That makes sense, because these workers all work for the same firm. But when it comes to schedules and benefits, Amazon drivers and fulfillment center workers may as well be working for different employers given how disparate their experiences are. In fact, they are. The fissured gig workers of Amazon Flex and the fissured workers at Amazon's franchised delivery partners are not, in Amazon's eyes, Amazon employees and it shows in their job quality and household economic security. However, as we show below, there are real limits on the extent to which this fissuring, which allows Amazon to skirt legal liability for delivery drivers, actually frees these workers and franchisees from Amazon's control.

Technology Unleashed

So far, our data reveal two truths about work in delivery and fulfillment. First, firms like UPS both pay higher wages and offer the prospect of internal wage mobility as earnings increase with job tenure, producing a better compensated long-tenured workforce, while Amazon's legions of drivers and fulfillment center workers churn through with few prospects for wage growth. Second, fissuring matters. UPS drivers and fulfillment center workers, covered by a union contract and working as W2 employees, enjoy similar levels of schedule predictability and benefits and similarly lower levels of material hardship. But, while Amazon fulfillment center workers do have access to stable schedules and to benefits, Amazon drivers are cut off from those dividends, with more unstable schedules, fewer benefits, and more material hardship.

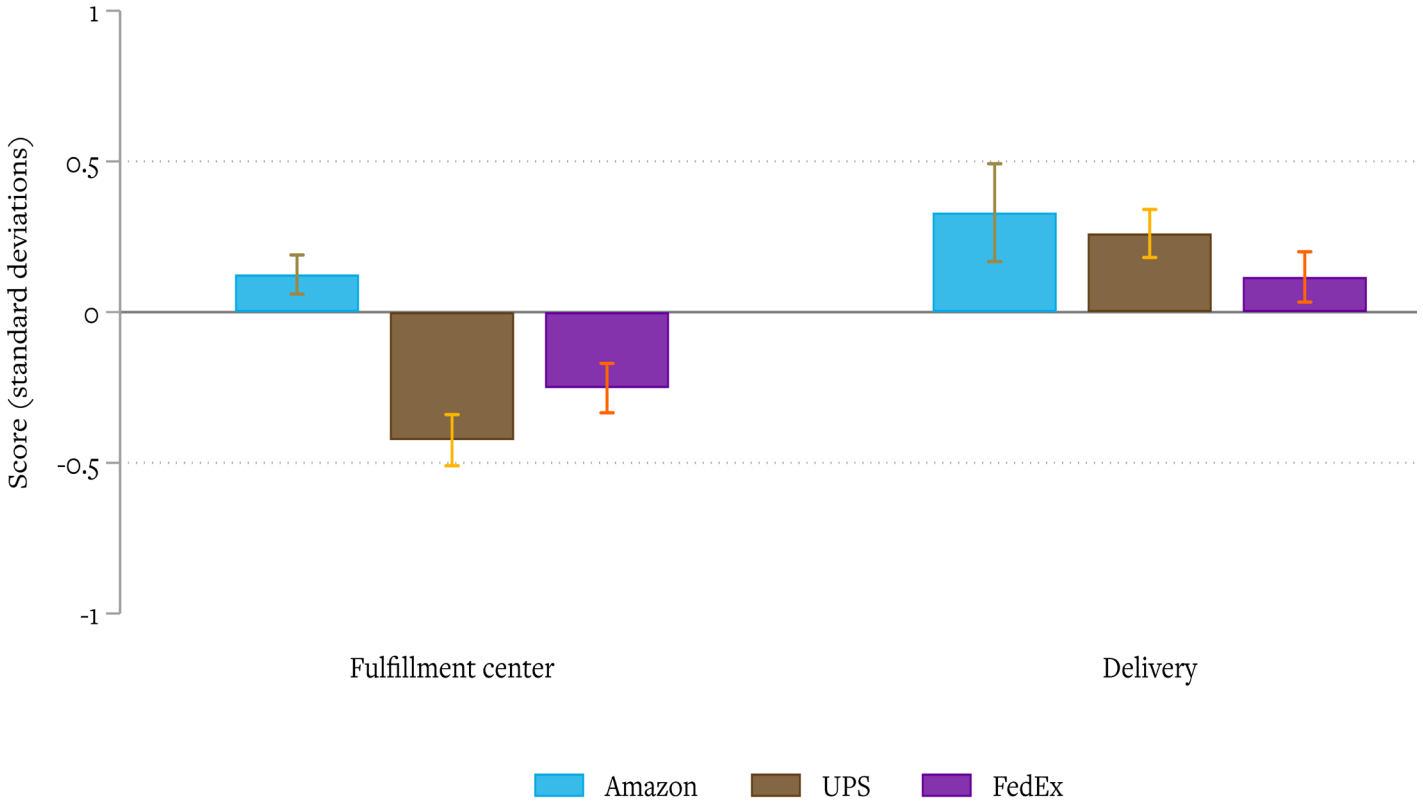
However, Amazon drivers and fulfillment center workers are united in one thing—a common exposure to workplace surveillance and speed tracking. **Figure 7** shows differences in exposure to speed tracking and to surveillance by role and by firm, while **Figure 8** shows differences in exposure to workplace surveillance. We asked workers about their exposure to several forms of speed tracking at work: the presence of a "leaderboard," the frequency with which their manager provides feedback on the

Figure 7. Speed Tracking of Fulfillment Center and Delivery Workers by Firm



Note: calculations from Shift project data, 2020-2024. The principal factor analysis used to produce this figure draws on responses to a set of Shift survey questions to create an overall index reflecting receipt of feedback on the speed of work. The result is a standardized scale based on the different items; scores can be interpreted as the number of standard deviations (a measure of variance) that the index for a company diverges from the mean for all three companies when pooled together. The pooled three-company mean includes both fulfillment center workers and delivery drivers.

Figure 8. Workplace Surveillance of Fulfillment Center and Delivery Workers by Firm



Note: calculations from Shift project data, 2020-2024. The principal factor analysis used to produce this figure draws on responses to a set of Shift survey questions to create an overall index reflecting exposure to workplace surveillance. The result is a standardized scale based on the different items; scores can be interpreted as the number of standard deviations (a measure of variance) that the index for a company diverges from the mean for all three companies when pooled together. The pooled three-company mean includes both fulfillment center workers and delivery drivers.

speed of their work, and the frequency with which technology provides feedback on the speed of their work. We find that speed tracking was least common at FedEx, both in fulfillment centers and delivery and most common at Amazon. But, while schedules and benefits differed substantially between W2 Amazon fulfillment center workers and fissured Amazon drivers, in the case of speed tracking, fulfillment center workers and drivers had similarly high rates of exposure. For example, while 30% of FedEx workers (in both delivery and fulfillment) reported a leaderboard at work, the share was nearly double, at 60%, among both Amazon drivers and fulfillment center workers. Similarly, about 60% of both groups of Amazon workers received feedback on speed from a technological device more than once a week, far above the 30% of FedEx workers.

Amazon drivers and fulfillment center workers also stand out for high levels of workplace surveillance. What is interesting here is that when it comes to surveillance, Amazon shows the opposite pattern as for benefits and schedules. Drivers and fulfillment center workers at Amazon have more similar experiences of surveillance, while drivers and fulfillment center workers at UPS and FedEx are more differentiated. For example, about 65% of Amazon fulfillment center workers and 75% of Amazon drivers say that their employer monitors the quality of their work.

In our interviews with Amazon workers, the omnipresence of speed tracking and surveillance was a recurrent theme. One 34 year-old Amazon worker at a Delaware fulfillment center told us:

When you come in for the shift, you're assigned to a particular receiving station. You have to sign into that station with your badge, with the barcode that's on your badge. Then, once you're signed into the station, everything that you do at that station is tracked through their computer and their monitoring system, so they know exactly how many units you've processed. They know if you make an error, and if you do, exactly how many errors you've made. Every second [of] downtime that you have because if scans aren't going through, it starts a timer. They know how long you were on break for. They know everything.

Rates of surveillance among Amazon fulfillment center and delivery workers are both far higher and more similar than the analogous rates at FedEx and UPS. Quality monitoring is reported by 30% of UPS fulfillment center workers and 60% of UPS drivers and by 45% of FedEx fulfillment center workers and 55% of drivers. We see a similar, if less exaggerated, pattern across monitoring of worker location, worker actions, worker interactions, and worker conversations. Amazon workers report higher levels of monitoring at more similar rates between fulfillment centers and delivery, while workers at UPS and FedEx report lower rates with more differentiation between fulfillment centers and delivery. Notably, across the board, drivers at UPS and FedEx report more surveillance than fulfillment center workers at those firms.

These patterns, of high levels of surveillance and speed tracking, not just of W2 Amazon employees in fulfillment centers, but also of fissured delivery drivers is exactly what we would expect from a firm that seeks to skirt legal responsibility while maintaining tight control. That these fissured drivers are actually *more* tightly surveilled and tracked than their counterparts at UPS and FedEx is especially striking.

Discussion

Today, Amazon is ubiquitous. Perhaps nowhere is the impact of this global behemoth more obvious than in the 1.6 million packages delivered each day to homes across the United States, and the 9 billion items delivered same-day / next day globally a year.[23] Some 83% of American households use Amazon.[24] Amazon Prime has 180 million subscribers in the U.S. alone and an estimated 220 million worldwide. This has made its founder and Chairman, Jeff Bezos, the fourth richest man in the world.

The expectation that you could order almost anything without ever leaving your home and have the product in hand just hours later upended not just the retail sector but also logistics and delivery. While Amazon did not invent home delivery, it revolutionized it. Behind that revolution are the people staffing fulfillment centers and behind the wheel of delivery vehicles.

The story of these workers is one that has been hard to capture. Part of the reason why is that there is little data that allow us to look inside the black box of workers' experiences at specific large firms and part of it is because doing so is especially hard given the way that Amazon hires drivers. Some work for third party delivery companies, known as DSPs, who answer to Amazon's strict requirements for delivery; others sign up for the job on Amazon Flex, essentially accepting a "gig" to deliver a pre-designated group of packages in a specific time period for a set amount of money, mediated through an online platform. Such arrangements create challenges for data collection on working conditions and even identification of who is doing this work, leaving a gap in understanding the impact of the company's behavior on this sector. This makes the survey responses collected by the Shift Project even more valuable. By pairing novel data on

23. Estimates by Red Stag Fulfillment. "How Many Items Does Amazon Ship per Day?" (Based on Amazon Quarterly Reports and third-party logistic trackers).

24. Marketwatch, "Here's why more Americans than ever now shop at Amazon," Oct. 12, 2024.

working conditions for Amazon drivers with detailed employer-identified information for fulfillment center workers at Amazon alongside their counterparts at UPS and FedEx, we can shed new light on the dark corners of the fast delivery economy.

While Amazon fulfillment workers contend with lower wages, fewer benefits, and much more speed tracking and surveillance than their counterparts at UPS, what emerges most clearly from these data is that the fissured drivers at the heart of Amazon's business models fare particularly poorly on multiple dimensions of job quality. The story of Amazon drivers is one of low wages, short-term attachment to the job, unpredictable schedules, and lack of access to benefits such as paid sick leave. At the same time, drivers are subjected to a high degree of control and surveillance over their movements.

It would be one thing if Amazon was simply conforming to conditions in the industry or one of many companies who hire delivery drivers. But it is not. Amazon's sheer size and market share as the largest home delivery retailer means what it does with respect to its drivers affects standards across the industry. Amazon drivers suffer lower working conditions in comparison to drivers at UPS and FedEx. As described in this paper, the contrast is greatest between Amazon drivers and UPS drivers (e.g., mean hourly wage of $19/hour at Amazon vs. $35/hour for UPS; earnings that grow markedly with years of service at UPS versus a flat earning profile at Amazon and significant differences in benefits on the job).

That contrast reflects widely divergent business models between Amazon and UPS. UPS has, for over a century, hired its drivers as employees. Employees have labor law protections that independent contractors, including too many "gig" workers, do not have. One of these is the right of workers to unionize, which UPS drivers have. UPS drivers make higher wages, have wages that increase over time, experience predictable scheduling and get access to benefits such as paid sick leave and paid vacation—all in contrast to Amazon drivers—because of the union contract between UPS and the Teamsters. The UPS model thrived competitively for decades providing its workforce good union jobs that allowed drivers to make a decent living and build a secure life.

Amazon's approach to unions is very different. Not only are Amazon's drivers not their direct employees, Amazon Flex drivers are not employees of anyone. Amazon has also cut ties with DSPs when their drivers form a union. While Amazon cites its subcontracting arrangement as a way to defend itself against unfair labor practice charges, the effect of cutting off a DSP for being unionized is the same: the drivers can no longer deliver for Amazon and the DSP invariably has to close down.

Amazon's expansion continues, rapidly approaching annual deliveries of the US Postal Service. UPS, by contrast, has seen drops in revenue, share of shipments, and stock value. The comparison between conditions for Amazon drivers and UPS drivers is not only significant because the two companies have used very different models for package delivery, differences that have a dramatic impact on the well-being of each company's own drivers; it also matters because Amazon exerts market power that impacts the working conditions of workers beyond its own delivery drivers. In the post-World War II era, working conditions of unionized workers rippled out to improve the wages and conditions of workers across much of the economy. The continuing expansion of the Amazon business model could portend very different and troubling ripples for working people more generally.

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Methodological Appendix

Data

The Shift Project has collected survey data from hourly service-sector workers employed at large retail and food establishments since the fall of 2016. In the spring and fall of each year 2017-2024, the Shift Project has recruited survey respondents using online Facebook and Instagram advertisements, targeted to workers employed at large retail and food service employers. Those who respond to the Shift survey invitation are automatically routed to a survey landing page where they are asked to consent to participate in the study, then begin the online self-administered survey using the Qualtrics platform. As an incentive, those who complete the survey and provide contact information are entered into a lottery for a $500 gift card. For a detailed discussion of The Shift Project data collection, methodology, and data validation, see Schneider and Harknett (2022).

We utilize the ten waves of survey data collected between the spring of 2020 and fall of 2024. Only respondents who a) report working at Amazon, UPS, or FedEx and b) report working in a "delivery vehicle" or a "warehouse or fulfillment center" are included in our analyses. Our final analytic sample is comprised of 9,180 survey respondents: 2,983 Amazon workers (2,704 fulfillment + 279 delivery); 3,328 UPS workers (1,669 fulfillment + 1,659 delivery); and 2,869 FedEx workers (1,510 fulfillment + 1,359 delivery).

To further illustrate our quantitative findings, we also draw from qualitative data gathered from five interviews of Amazon workers, conducted between October of 2022 and July of 2023. Recent Shift survey respondents who reported working at select firms of interest (like Amazon) were offered the opportunity to participate in a 60-90 minute virtual interview in exchange for a $50 gift card. These interviews covered a diverse range of topics pertaining to work-life conflict and experiences on the job, providing greater detail to the information gathered in the Shift survey. Our Amazon interviews featured 2 warehouse workers, 2 delivery station workers, and 1 delivery station manager.

Measures

From the wide breadth of topics covered in the Shift survey, we are able to construct a holistic array of measures reflecting workers' self-reported job quality. In addition to a continuous measure of respondents' hourly wage, we create six indices, each combining several dichotomous indicators that pertain to a certain dimension of workers' jobs and overall wellbeing.

Schedule instability index (6-item):

1. Less than 2 weeks' advance notice of what days and hours they will need to work
2. Ever asked to be on-call for work in the past month
3. Ever had a scheduled shift canceled in the past month
4. Ever had the timing of a schedule shift changed in the past month
5. "Starting and finishing times are decided by [their] employer and [they] cannot change them on [their] own" or "starting and finishing times are decided by [their] employer but with [their] input"
6. "Feel they have to keep their schedule open to be available for their job"

Benefits index (6-item): "*Which of the benefits on this list can you receive as part of your job at* [*EMPLOYER*]*?*"

1. Paid sick days
2. Paid vacation days
3. Paid maternity or paternity leave
4. Health plan or medical insurance
5. Dental benefits
6. A retirement plan other than Social Security

Automation & AI index (4-item):

1. Workplace has "robots that stock shelves or move boxes"
2. Workplace has "robots that take inventory"
3. Workplace has AI that "helps predict demand for certain items or what the busy periods are going to be"
4. Workplace has AI that "optimizes the order of tasks, such as picking in a certain order or taking a particular delivery route"

Surveillance index (5-item): *"Please indicate how much your employer uses technology to monitor..."*

1. Where workers go in the workplace – *"a great deal"*
2. What workers do in the workplace – *"a great deal"*
3. Who workers are with in the workplace – *"a great deal"*
4. What workers say in the workplace – *"a great deal"*
5. The quality of work – *"a great deal"*

Speed index (3-item):

1. Leaderboard in workplace
2. Manager provides feedback on speed of work at least once per week
3. Automated technology provides feedback on speed of work at least once per week

Material hardship index (6-item):

1. "Received free food or meals because [they] didn't have enough money" in past month
2. "Hungry but didn't eat because [they] couldn't afford enough food" in past month
3. "Did not pay the full amount of gas, oil, or electricity bill because [they] didn't have enough money" in past month
4. "Move[d] in with other people because of financial problems" in past month
5. "Stay[ed] in a shelter, in an abandoned building, an automobile, or any other place not meant for regular housing, even for one night" in past month
6. "Anyone in [their] household needed to see a doctor or go to the hospital but couldn't go because of the cost" in past month

To more precisely capture the latent factors shared among index items, we employ principal factor analysis (PFA). PFA both verifies that a given index reflects a common latent construct and allows for the creation of standardized factor scales that, unlike simple additive indices, account for heterogeneous factor loadings between items. We use rely on eigenvalues, which indicate the extent to which a factor can explain variance of individual index items, to assess the validity of our constructed indices, and we refer to the Kaiser criterion—which dictates that a single eigenvalue above 1 suggests successful capture of a single latent factor—as a general standard. Four of our six indices meet this standard outright, while the remaining two (schedule instability and speed) do not but nonetheless have a single eigenvalue that is close to 1 and much greater than that of all other factors. While we present these standardized factor scale results throughout the main text, we also present predicted outcomes broken down by individual index items in Appendix Figures 1-5.

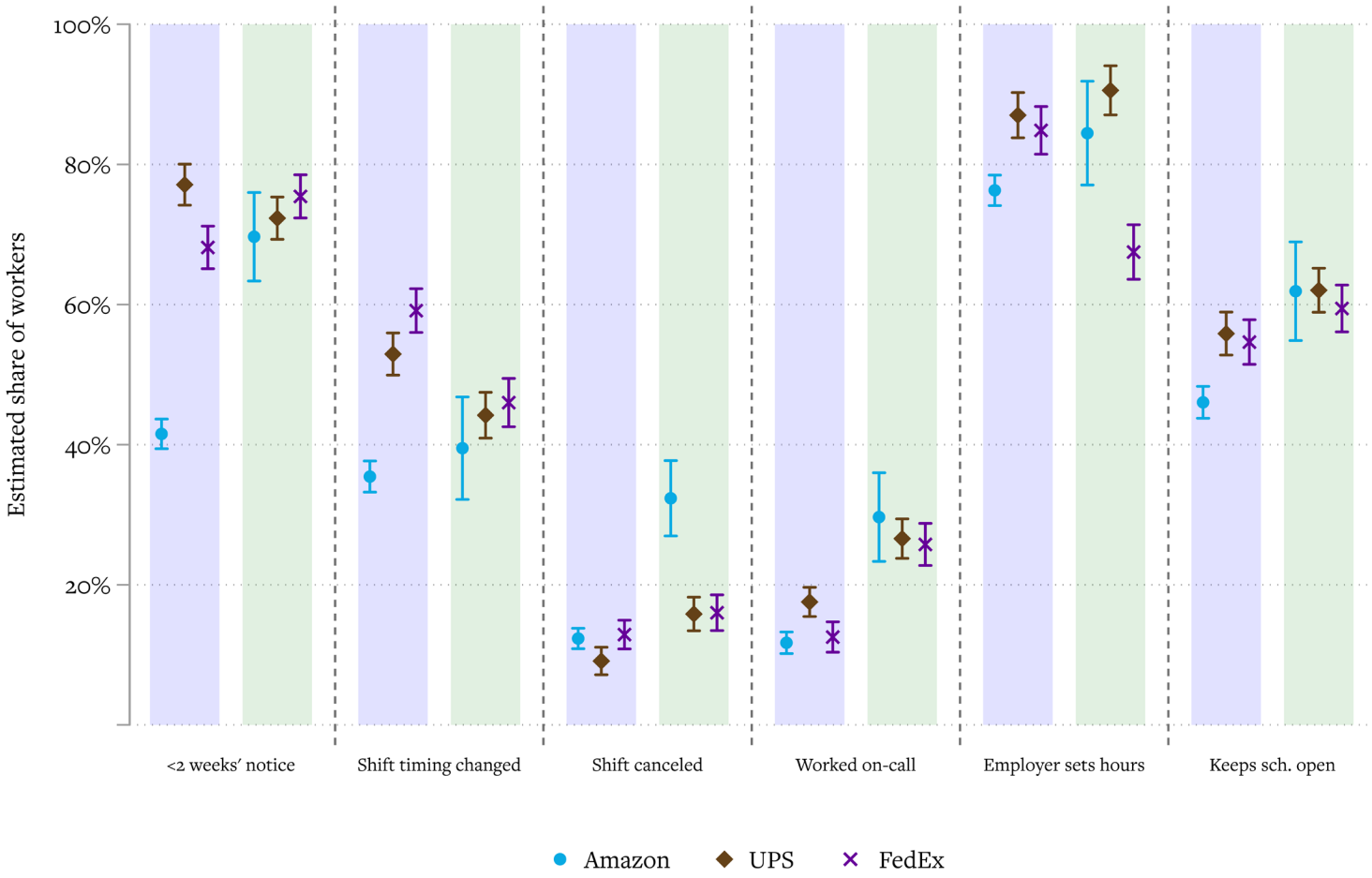
Models

In all analyses, we estimate outcomes separately for fulfillment center workers and delivery drivers. We do so by applying a linear regression model to our respondent-level data, regressing each outcome on three categorical covariates—firm, state, and survey wave—after restricting our sample to one of the two workplace types. From the resulting firm fixed effect estimates, we derive our predicted outcomes by firm and workplace type.

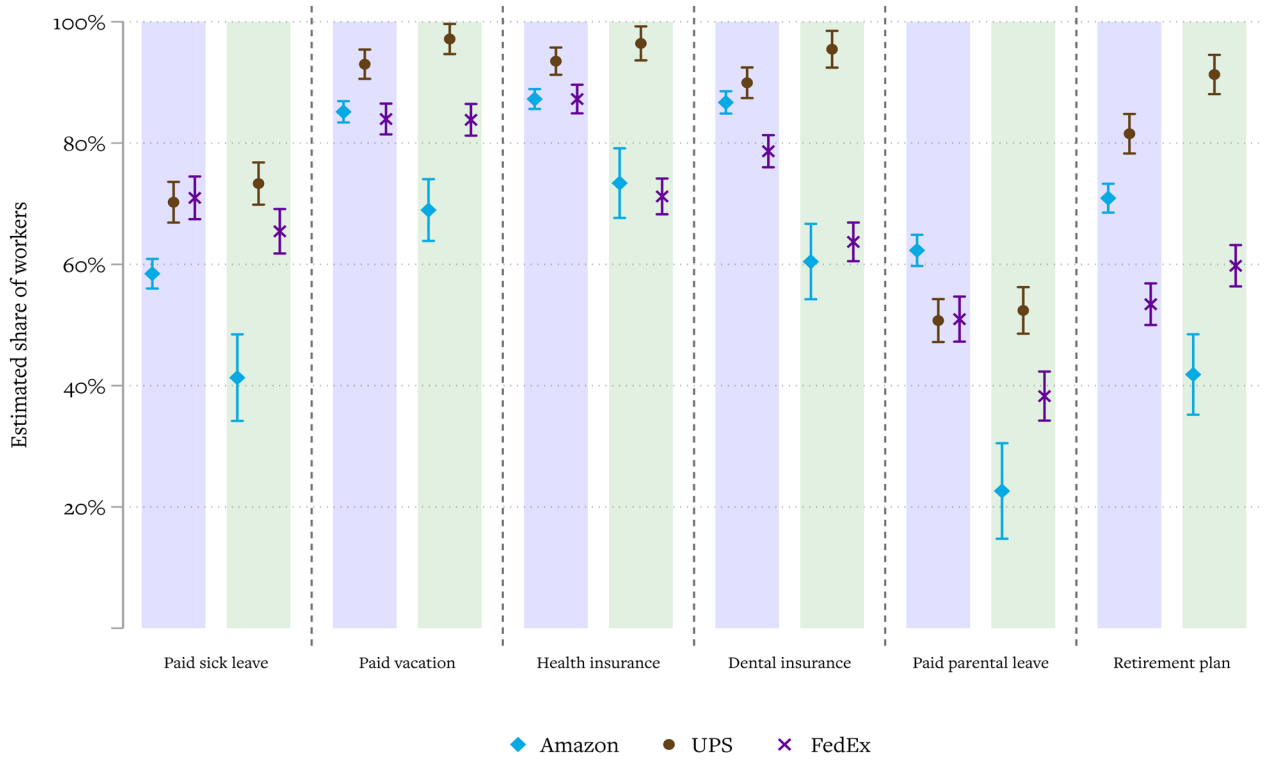
Appendix Exhibits

For each outcome, the blue highlight on the left denotes estimates for fulfillment center workers, while the green highlight on the right denotes estimates for delivery vehicle drivers.

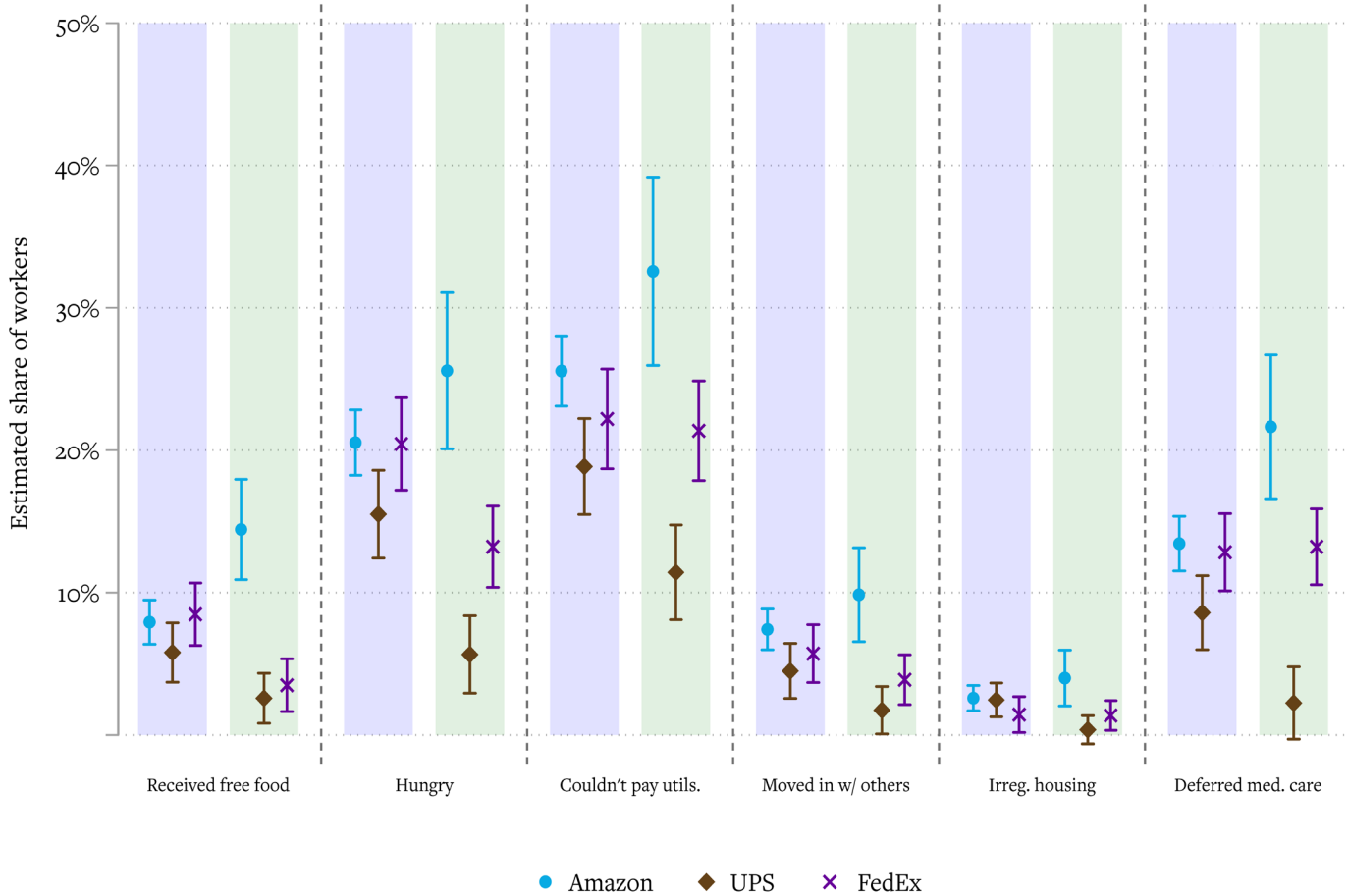
Appendix Figure 1. Individual Scheduling Instability Outcomes for Fulfillment Center and Delivery Workers by Firm



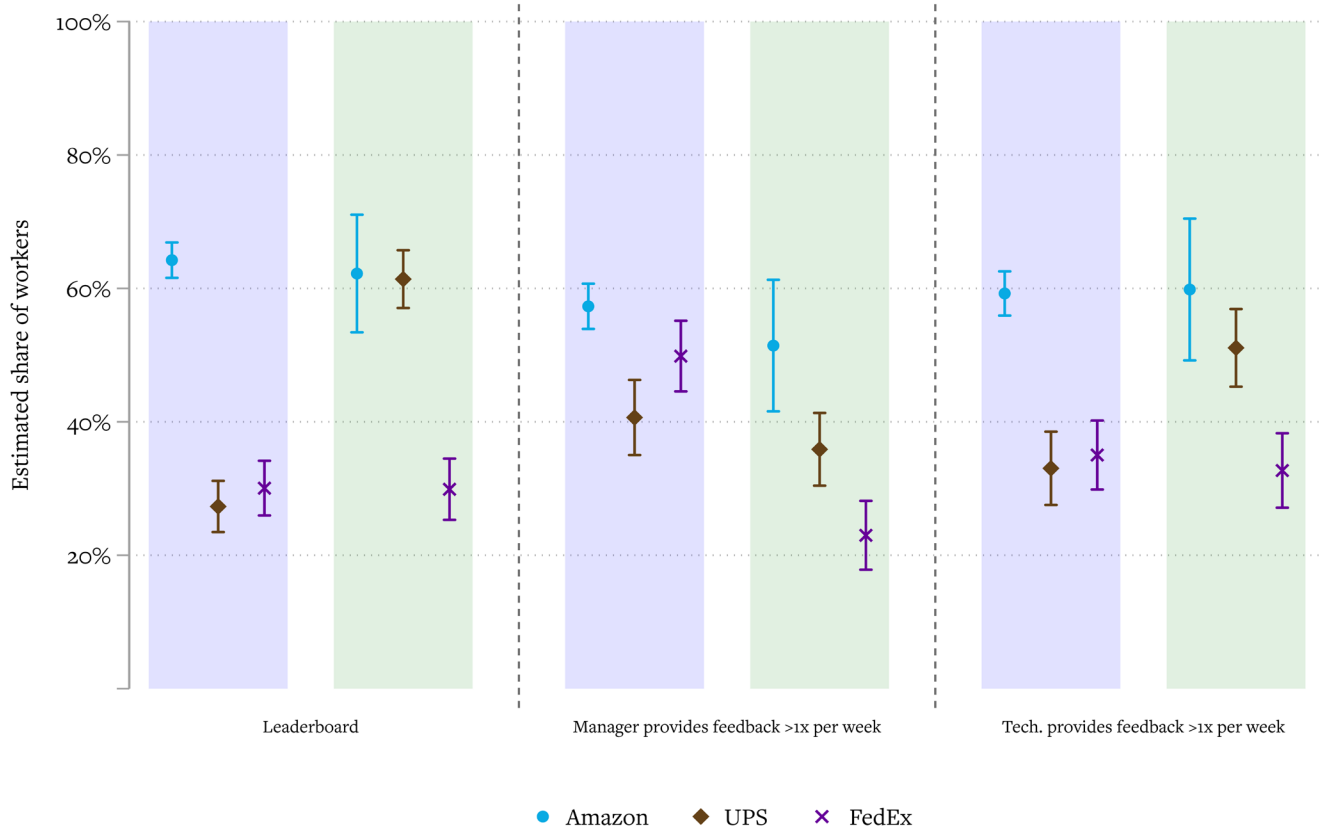
Appendix Figure 2. Individual Fringe Benefits Outcomes for Fulfillment Center and Delivery Workers by Firm



Appendix Figure 3. Individual Material Hardship Outcomes for Fulfillment Center and Delivery Workers by Firm



Appendix Figure 4. Individual Speed Tracking Outcomes for Fulfillment Center and Delivery Workers by Firm



Appendix Figure 5. Individual Workplace Surveillance Outcomes for Fulfillment Center and Delivery Workers by Firm