How Uber Became A Cash-Generating Machine

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Higher Prices, Lower Pay, and Degraded Service Rewards Investors, For Now

Uber has achieved one of the most impressive turnarounds in recent corporate history — a $12 billion swing in free cash flow over the past five years. And through the first quarter of 2025, Uber is on track to reach another milestone: over $10 billion of free cash flow in a single year. How did a company with the dubious distinction of having lost more money than any startup in history during its first decade turn into such a prodigious cash-generating machine? The most significant driver is Uber's shrewd decision to launch "upfront pricing" — the largest scale implementation of algorithmic price discrimination on both sides of its marketplace — enabling the company to raise rider fares and cut driver pay on billions of rideshare trips, systematically, selectively, and opaquely.

This is the key finding of a groundbreaking research project by Columbia Business School researchers based on an analysis of the pay and price trip

records of Uber power drivers who completed tens of thousands of trips over the past five years, as well as an analysis of over two million rideshare trip requests between 2019 and Q1 2025 in eight large US cities.

We found strong evidence that Uber's recent profit improvement can be traced precisely to the launch of upfront pricing in Q3 2022. Moreover, we uncovered several non-transparent, often deceptive, and previously unreported ways Uber has exploited its opaque price and pay algorithms to increase profits at rider and driver expense, including:

- Increasing the number and profitability of "Forward Dispatch Trips" (where drivers accept a new trip while still completing a current trip), which give riders worse service at higher prices, while drivers gain little or none of the price premiums

- Surge bonus-shaving, where Uber claws back a portion of surge bonuses through reductions in base pay

- Bait-and-switch rider discounts, where Uber raises rider base prices on trips before applying advertised discounts

- Frequent market probes to determine consumers' maximum willingness to pay, including evidence of systematically charging higher prices for trips between high-income neighborhoods

To explain how and why Uber was able to achieve such a remarkable turnaround, it's useful to start by retracing the company's path to profitability.

Uber's Path to Profitability

CEO Dara Khosrowshahi deserves credit for his decisive moves to put Uber on a path to breakeven, but, as shown in Figure 1, most of his early actions reached their full potential by 2022, when Uber's profit improvement stalled.
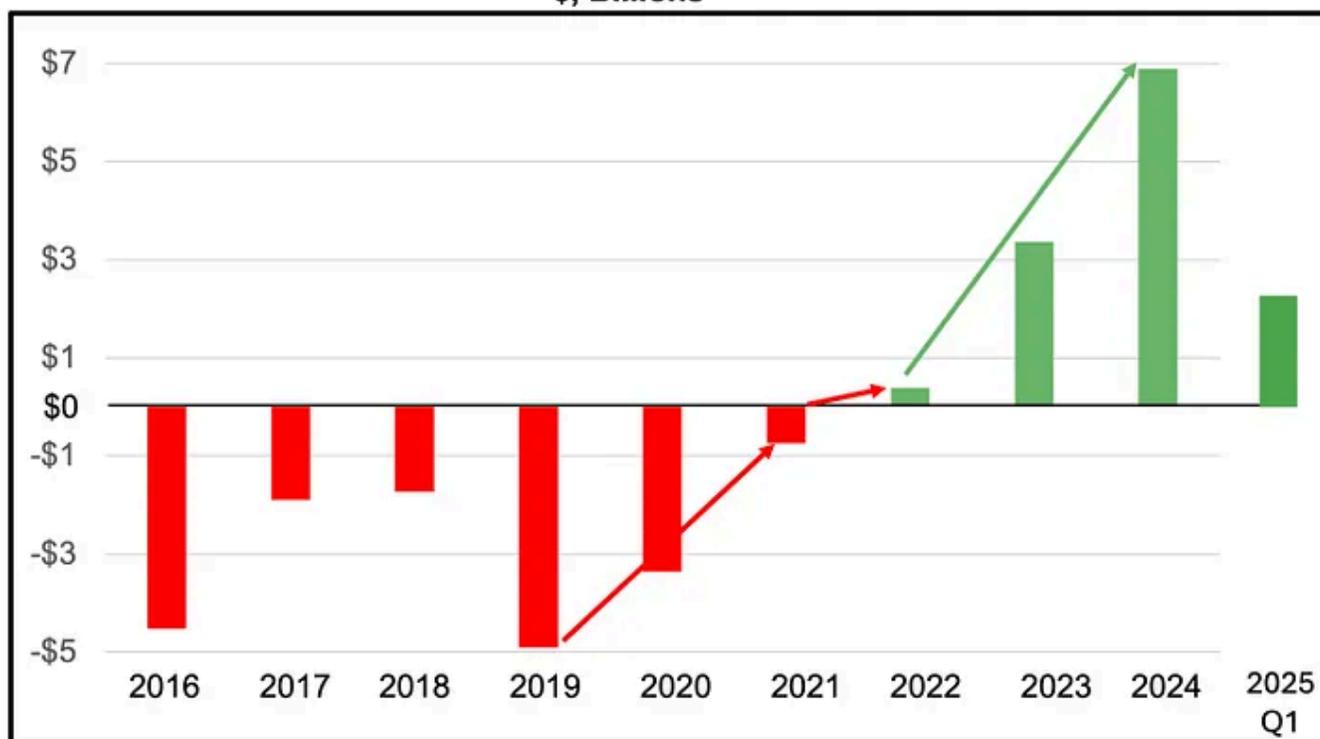
Shortly after being hired as Uber's CEO in September 2017, Khosrowshahi:

- Raised rider prices <u>three times faster</u> than inflation between 2018 and 2022

- Cut <u>driver base pay rates</u> over this period

- Divested money-losing non-core operations (e.g., autonomous vehicle R&D, air taxi services)

- Exited money-losing rideshare and delivery operations in poorly performing regions (e.g., SE Asia, India)

- Decisively cut headcount early in the pandemic

- Maintained disciplined hiring and cost control, post-pandemic

Figure 1

Uber's Turnaround

Uber Free Cash Flow
$, Billions

However, by mid-2022, Uber was still unprofitable, and its stock price remained mired 40% below its IPO listing price, putting the CEO's massive all-or-nothing stock incentive bonus at risk unless he could boost Uber's market value above $120 billion by September 2024. Khosrowshahi urgently needed to do *something* to re-energize Uber's profit growth, to enrich shareholders and himself.

Starting in mid-2022, Uber began introducing "upfront pricing" in the US, which gave the company the ability to set rider prices and driver pay with proprietary AI-driven algorithms for each of the billions of trips the company books every year.

Uber's prior business practice mirrored the century-old taxi industry protocol of setting rider fares and driver pay according to fixed per-mile and per-minute rates, with a new twist of adding surge premiums equally to driver pay and rider price during periods of unbalanced supply and demand.
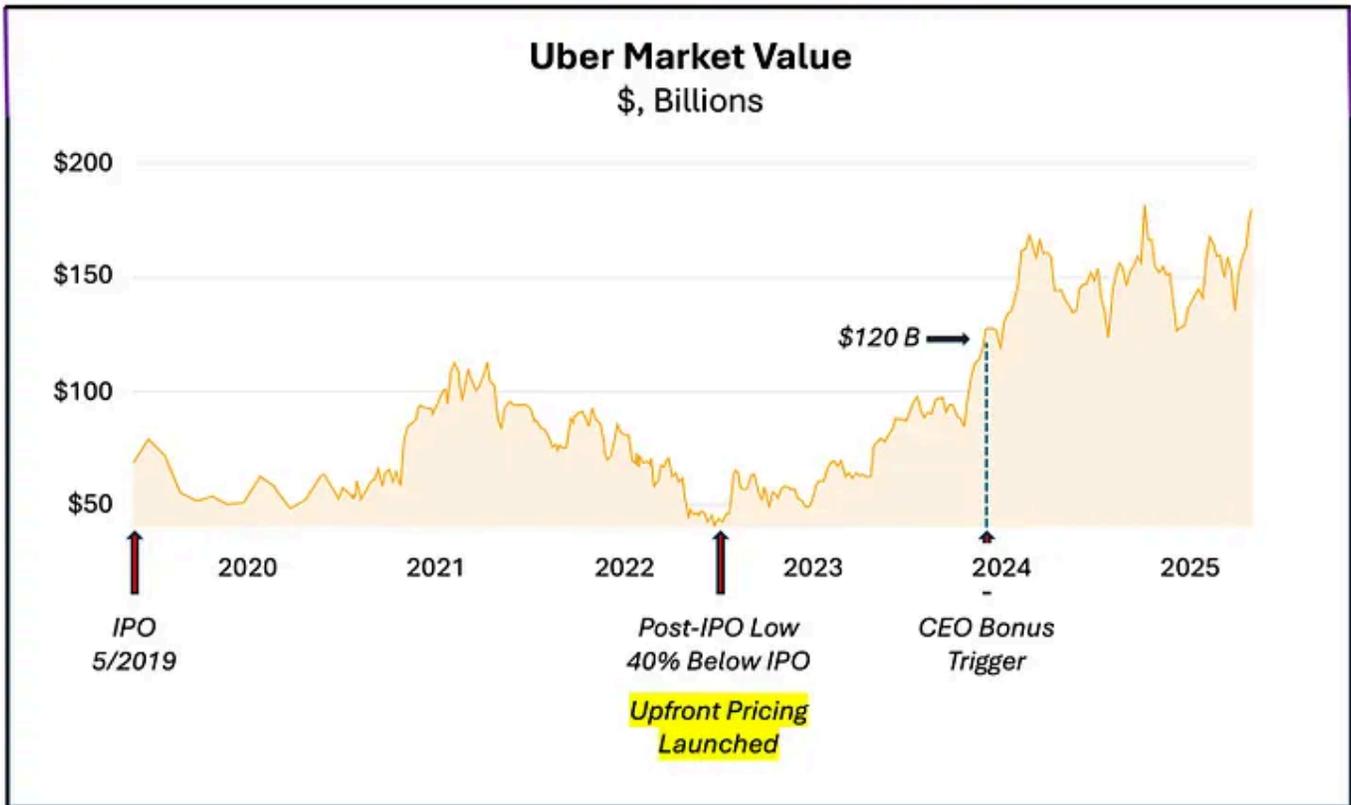
Uber's upfront pricing policy largely decoupled price and pay from trip time and distance, enabling Uber to selectively raise prices closer to an algorithmically-determined maximum each consumer might be willing to pay for a given trip, while lowering pay to an algorithmically-determined minimum any nearby driver might be willing to accept.

It's important to note that we use the term "discrimination" throughout this report to refer what economists call "first order price discrimination" — the ability for a firm to set a product price close to each buyer's highest willingness to pay, and paying the lowest amount any supplier would be willing to accept for a product or service. We have no basis to believe that Uber has ever manipulated prices or pay based on buyer or seller characteristics such as gender, race, or ethnicity. Rather, price discrimination in our context is "color-blind," concerned *only* with seeking the highest price and lowest pay it can charge to deliver rideshare services.

The striking results from Uber's adoption of upfront pricing speak for themselves. Since mid-2022, Uber's stock price has increased fourfold, and Khosrowshahi locked in his stock bonus, partially cashing out over $35 million of his bonus in June 2024 (Figure 2).

Figure 2

Shareholder And CEO Rewards

Uber Market Value
$, Billions

- IPO 5/2019
- Post-IPO Low 40% Below IPO
- Upfront Pricing Launched
- $120 B →
- CEO Bonus Trigger

Source: YCharts, Author Analysis

Data and Methodology

To understand how upfront pricing drove Uber's profit improvement, we undertook a detailed analysis of its impact on an experienced driver in a large metropolitan area who completed over 31,000 rideshare trips between 2018 and mid-February 2025, driving full-time, nearly exclusively for Uber.

The data for this analysis came directly from Uber. Uber promises to provide any driver who requests it, a detailed trip history, which includes information on rider price, driver pay, surge bonuses and tips when applicable, trip distance, travel time, algorithmic adjustments to driver pay and timestamps for when each trip was accepted by the driver, started at the passenger pickup point, and completed at the rider's destination. Several

drivers requested, received, and were willing to share their trip histories with our research team.

To best understand Uber's price and pay algorithms, we were particularly interested in assessing the economics of "power drivers" who serve as the backbone of Uber's supply network. In many urban areas, only one-third of drivers work at least 20 hours per week, but deliver almost 70% of all rideshare trips. Moreover, since Uber particularly values loyal drivers with high acceptance rates, we singled out drivers for our study, who met the following criteria:

- Drive for Uber for at least five years in the same city

- Drive close to full-time most weeks

- Drive predominantly for Uber

- Deliver mostly standard UberX rideshare service (i.e., excluding Uber Black, Reserved, Rideshare, and Pooled rides)

- Maintain high trip acceptance rates, low cancellation rates, and extremely high rider satisfaction scores

One driver met all these criteria, and his trip history was used as the basis for many of the in-depth analyses documented in this report. After excluding some observations to adhere to the criteria cited above, the final count for our profiled driver was 24,532 trips — clearly large and consistent enough to identify and quantify the salient economic impacts of Uber's business policies on the company, its riders, and drivers.

One could, of course, question the validity of extrapolating Uber's overall ridesharing economics from an analysis on just one power driver. While

there is indeed considerable variability in driving patterns and market conditions across Uber's pool of over one million US rideshare drivers, our analysis deliberately focused on Uber's most important driver segment, responsible for a majority of the rideshare trips the company delivers.

Moreover, based on the insights gained from our analysis, it is reasonable to presume that:

- Uber has the opportunity, capability, and strong incentive to apply the same tactics identified in our analysis to all its drivers and riders across the US

- The question, therefore, isn't whether our profiled driver is truly representative of all US drivers, but rather, given the massive Uber profit improvement revealed by our analysis, *why wouldn't Uber seek to exploit the same levers* across its entire pool of over one million drivers in the US?

- In fact, there is <u>considerable evidence</u> from large-scale database analyses of the US ridesharing business confirming that since implementing upfront pricing, Uber *has* increased rider prices, *has* cut driver pay, *has* increased its take rates, and, of course, *has* greatly improved its cash flow during the period covered by this study.

- What the detailed analysis in our report does add is a much more granular understanding of how Uber's pivotal shift to upfront pricing has dramatically improved its profit leverage.

A second data source used in our study came from <u>Obi</u>, a third-party data services company that compiles information on millions of consumer rideshare requests, including data on trip characteristics, relative prices, and wait times for competing global rideshare platforms. For this project, we

focused on over two million ride requests to Uber and Lyft in eight major US cities between 2019 and Q1 2025.

Key Findings

From an analysis of our profiled rideshare driver's trip history shown in Figure 3, there should be little doubt when Uber introduced its upfront price policy. Starting on September 1, 2022, Uber's upfront pricing policy gave Uber the flexibility to continue to raise rider prices, while reversing the COVID-era trend of increasing driver pay with consistent pay cuts. As a result, Uber was able to significantly increase its take rate — the percent of rider fares net of driver pay captured by the company — from about 32% at the start of upfront pricing to upwards of 42% by the end of 2024.

Figure 3

Driver Pay, Price, and Take Rate Trends

Driver Pay and Rider Price/Mile.

Uber Take Rate
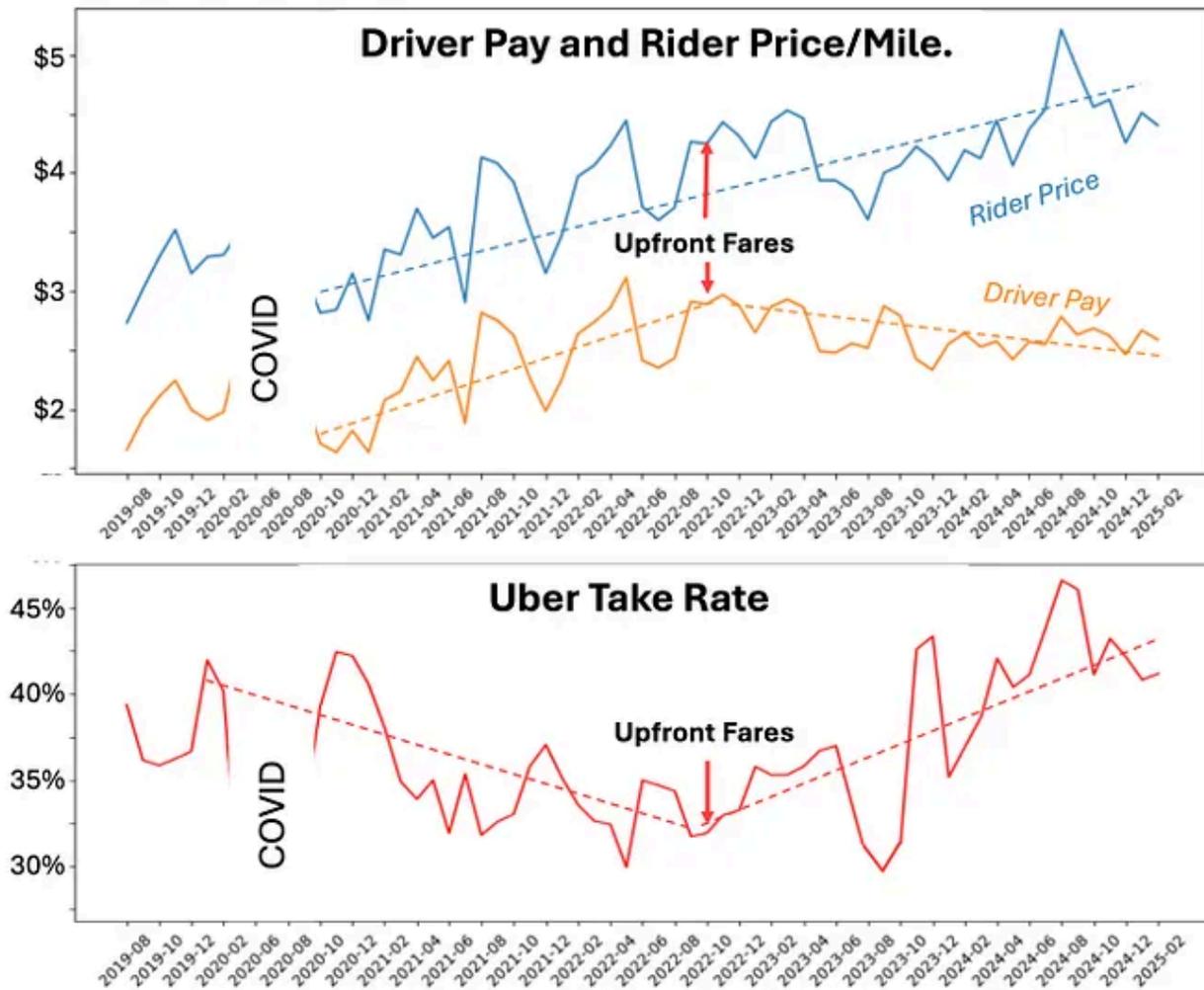
* Author of trip history analysis of a full-time Uber driver's 22,406 UberX trips in the same city (starting 8/26/2019)

Upfront pricing also enabled Uber to rebalance its rider prices, raising fares to increase margins for its predominant number of short rideshare trips, while moderating prices on longer trips to stimulate demand for more profitable, higher mileage rides. Evidence of this strategic pricing shift can be seen in Figure 4.

Figure 4

Uber Has Rebalanced Pricing To Stimulate Demand For Longer, More Profitable Rideshare Trips

Rideshare Rider Price Per Mile*

Distance	2019	2022	2023	2024	2025	% Change 2019-2022	% Change 2022-2024	% Change 2022-2025
Uber								
0-3 Miles	$8.18	$10.79	$9.96	$10.49	$10.06	31.9%	-2.8%	-6.8%
3-6 Miles	$5.14	$6.23	$5.64	$5.69	$5.63	21.2%	-8.7%	-9.6%
6-10 Miles	$4.06	$4.58	$4.09	$4.14	$4.24	12.8%	-9.6%	-7.4%
10+ Miles	$3.17	$3.52	$2.94	$3.07	$2.89	11.0%	-12.8%	-17.9%
Lyft								
0-3 Miles	$8.03	$10.61	$9.31	$9.92	$9.88	32.1%	-6.5%	-6.9%
3-6 Miles	$4.92	$6.21	$5.38	$5.54	$5.71	26.2%	-10.8%	-8.1%
6-10 Miles	$3.80	$4.74	$4.06	$4.15	$4.34	24.7%	-12.4%	-8.4%
10+ Miles	$2.94	$3.74	$2.97	$3.11	$2.98	27.2%	-16.8%	-20.3%

Average Uber Rideshare Distance (miles)*

Year	Value
2019	7.1
2020	7.6
2021	8.0
2022	8.1
2023	9.3
2024	9.3

31%

Average Uber Gross Profit Per Trip by Distance*
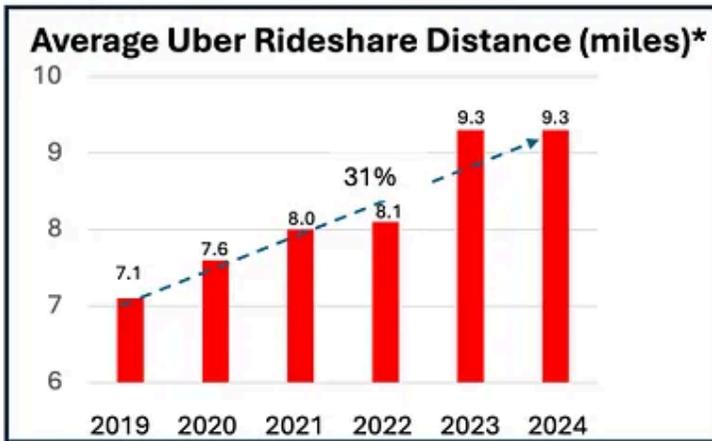
Miles	2019	2024
0 – 2.99	$4.02	$5.03
3 – 5.99	$4.94	$7.15
6 – 9.99	$6.01	$8.08
10+	$9.04	$13.78

* Based on analysis of over 2 million rideshare trips in a national sample of eight major cities in Obi's database. Gross profit figures drawn from profiled Uber driver's trip history

Uber's upfront pricing policy thus unlocked a **trifecta of profit improvement**: higher margins applied to higher-priced trips plus a shift to longer, more profitable trips.

What is this trifecta of profit levers worth to Uber? A lot! Uber's profit improvement from our profiled driver can be extrapolated to Uber's overall US rideshare business as shown in Figure 5, suggesting Uber has become almost $4 billion more profitable in its US rideshare business in 2024 than it would have been with gross margins from five years earlier.

Figure 5

Uber's Trifecta of Post-Upfront Pricing Profit Levers

HIGHER TAKE RATES* × HIGHER PRICE TRIPS* + MORE LONG TRIPS** = HIGHER GROSS PROFITS

Avg. Take Rate
2019: 38.8%
2024: 41.1%   +2.3 pp

Avg. Price/Mile
2019: $2.75   +$1.75
2024 $4.50   +40%

Avg. Trip Distance
2019: 7.1 Mi.   +2.2 Mi.
2024 9.3 Mi.   +31%

Avg. Gross Profit/Trip
2019: $4.89   +$1.29
2024: $6.18   +40%

$1.3 X 3 Billion = $3.9 Billion

Gross Profit Improvement Per Trip 2019-2024   2024 Uber US Rideshare Trips   2024 US Uber Profit Improvement

* Based on an analysis of trip history of a full-time Uber driver, driving 22,406 UberX trips in the same city, starting 8/26/2019. Note, profiled driver predominantly drove short trips (<10 miles) throughout the study period, so the estimate of the increase in his gross profit/trip is likely low relative to the national average
** Based on analysis of over 2 million rideshare trips in a national sample of eight major cities in Obi's database.

This analysis reflects only a fraction of Uber's global business. Uber has implemented upfront pricing globally, including large-scale operations throughout Europe and South America. The US accounts for only around 25% of Uber's global mobility and delivery trips, suggesting that globally, upfront pricing has been a *major* contributor to Uber's $12 billion cash flow swing over the past five years.

Untangling the inner workings of algorithmic price discrimination on both sides of Uber's marketplace
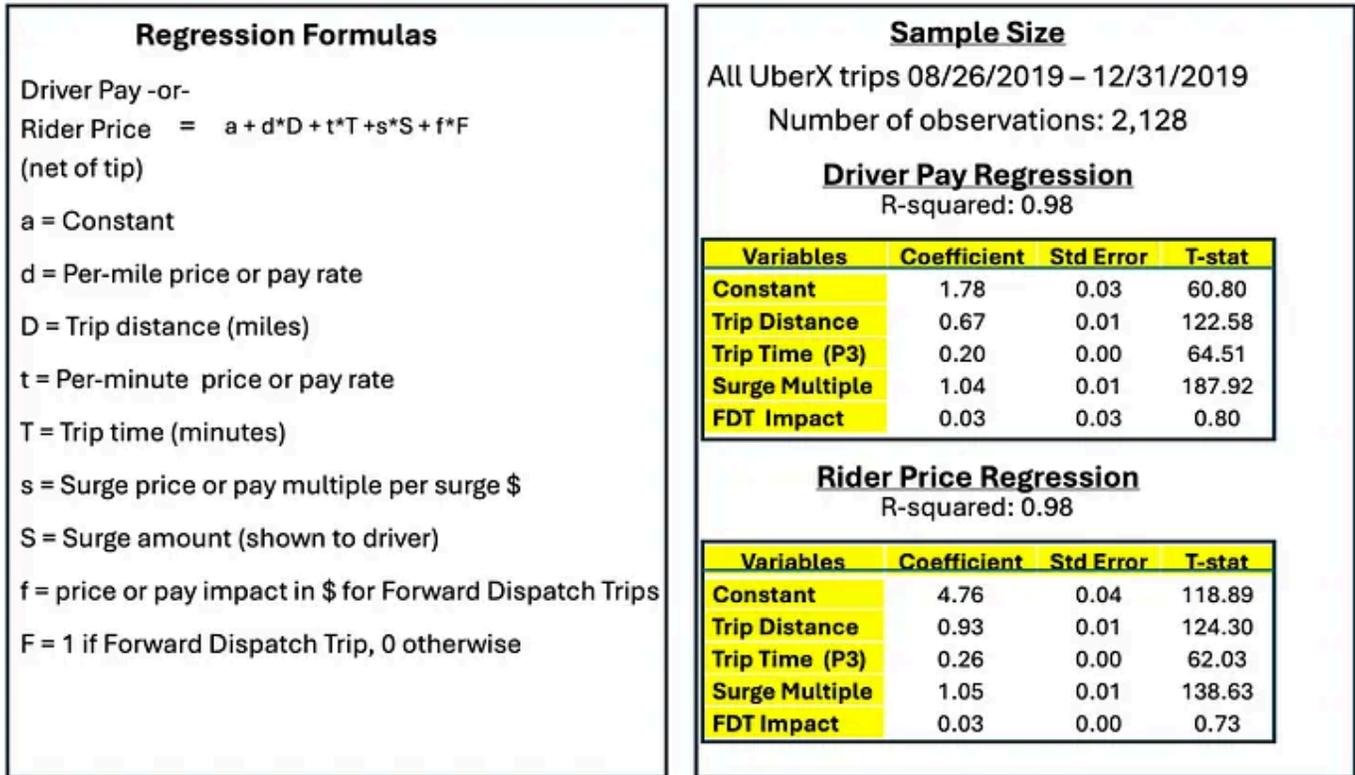
To better understand how Uber exploits upfront pricing to enhance its profits at the expense of drivers and riders, it's useful to compare how constrained and rigid Uber's previous revenue model used to be, to the flexibility the company now enjoys with upfront pricing.

Figure 6 displays the results of a regression model linking rider price and driver pay to basic rideshare trip characteristics — distance, travel time, and

whether market surge pricing was in effect — for the 2,128 UberX trips completed by our profiled driver in 2019.

Figure 6

Driver Pay & Rider Price Regressions
2019

Regression Formulas

Driver Pay -or-
Rider Price = $a + d*D + t*T + s*S + f*F$
(net of tip)

a = Constant

d = Per-mile price or pay rate

D = Trip distance (miles)

t = Per-minute price or pay rate

T = Trip time (minutes)

s = Surge price or pay multiple per surge $

S = Surge amount (shown to driver)

f = price or pay impact in $ for Forward Dispatch Trips

F = 1 if Forward Dispatch Trip, 0 otherwise

Sample Size
All UberX trips 08/26/2019 – 12/31/2019
Number of observations: 2,128

Driver Pay Regression
R-squared: 0.98

Variables	Coefficient	Std Error	T-stat
Constant	1.78	0.03	60.80
Trip Distance	0.67	0.01	122.58
Trip Time (P3)	0.20	0.00	64.51
Surge Multiple	1.04	0.01	187.92
FDT Impact	0.03	0.03	0.80

Rider Price Regression
R-squared: 0.98

Variables	Coefficient	Std Error	T-stat
Constant	4.76	0.04	118.89
Trip Distance	0.93	0.01	124.30
Trip Time (P3)	0.26	0.00	62.03
Surge Multiple	1.05	0.01	138.63
FDT Impact	0.03	0.00	0.73

The results demonstrate that Uber's rider price and driver pay in 2019 were formulaic and highly predictable (R^2 = .98). One need only apply the prevailing price and pay rates in effect in 2019 to the distance and travel time for any trip, add in the prevailing surge bonus if any, and, with 98% accuracy, predict the actual trip price and pay. This predictive accuracy is even more evident from a visualization of predicted versus actual trip prices and pay from these regressions, shown in Figure 7.

Figure 7

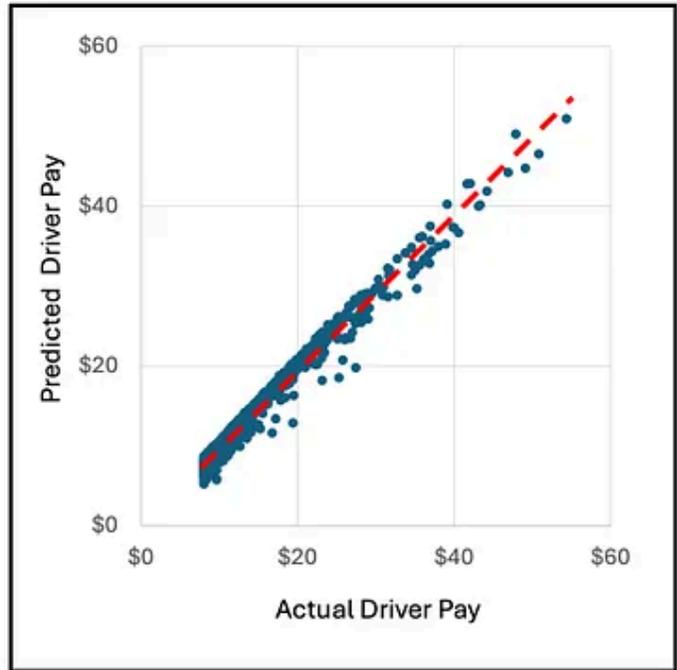**Driver Pay & Rider Price Regression Fits**
2019

Driver Pay Regression
$R^2 = .98$

Rider Price Regression
$R^2 = .98$

Now, let's compare what these regressions look like for our profiled driver's 5,548 UberX trips in 2024, displayed in Figures 8 and 9.

Figure 8

Driver Pay & Rider Price Regressions
2024

Regression Formulas

Driver Pay -or-
Rider Price = a + d*D + t*T +s*S + f*F
(net of tip)

a = Constant

d = Per-mile price or pay rate

D = Trip distance (miles)

t = Per-minute price or pay rate

T = Trip time (minutes)

s = Surge price or pay multiple per surge $

S = Surge amount (shown to driver)

f = price or pay impact in $ for Forward Dispatch Trips

F = 1 if Forward Dispatch Trip, 0 otherwise

Sample Size

All UberX trips 01/01/2024 – 12/31/2024
Number of trips included: 5,548

Driver Pay Regression
R-squared: 0.77

Variables	Coefficient	Std Error	T-stat
Constant	4.07	0.05	77.90
Trip Distance	0.71	0.02	49.09
Trip Time (P3)	0.18	0.01	27.71
Surge Multiple	0.91	0.02	54.96
FDT Impact	-.31	-6.96	-6.96

Rider Price Regression
R-squared: 0.78

Variables	Coefficient	Std Error	T-stat
Constant	7.32	0.09	88.15
Trip Distance	1.35	0.02	57.15
Trip Time (P3)	0.20	0.01	18.58
Surge Multiple	1.68	0.03	52.17
FDT Impact	0.32	0.07	5.52

Figure 9

Driver Pay & Rider Price Regression Fits
2024

Driver Pay Regression
$R^2 = .77$

Rider Price Regression
$R^2 = .78$

Since launching upfront pricing, Uber clearly has considerably more flexibility in setting rider prices and driver pay than can be explained by the basic trip characteristics that were so deterministic under Uber's prior business model. While trip time, distance, and surge bonuses still play a role, these characteristics now explain only 77% of the observed upfront price and pay levels. Upfront pricing has thus given Uber considerable "wiggle room" to maximize profits by adjusting prices and pay on every trip.

Uber uses this flexibility to full advantage as shown in Figure 10.

Figure 10

Upfront pricing profit levers

* Based on analysis of 24,532 trip records from the trip history of a full-time Uber driver

In 2019, **86%** of Uber's trips were within +/- 10% of expected price and pay levels, i.e., the formulaic price and pay for a given distance, time, and surge bonus level (Figure 10, Panel 1). These trips yielded an Uber take rate of 38% and accounted for 87% of the gross profit Uber earned from all UberX trips by our profiled driver in 2019. *Standard, predictable price and pay levels were clearly the norm prior to Uber's shift to upfront pricing.*

In contrast, in 2024, only **22%** of our profiled driver's trips were within +/- 10% of predicted price and pay levels based on trip time, distance, and surge bonuses, accounting for only 21% of Uber's total gross profit from this driver. *Clearly, variable price and pay levels became the norm in 2024, post-upfront pricing.*

The question is, where and why did Uber change rideshare prices and pay for the majority (78%) of trips in 2024 that were outside of the "normal" levels? As shown in Figure 10, Panels 2–4, there are three major types of exceptions to time- and distance-based price and pay levels.

- Trips where rider prices were more than 10% **above** average for a given distance, time, and surge bonus level

- Trips where driver pay was more than 10% **below** average for a given distance, time, and surge bonus level

- Trips were conditions 1 and 2 were **both** in effect

The first case, premium pricing (Figure 10, Panel 2), accounted for 22% of all 2024 trips and generated a higher Uber take rate than such trips in 2019 (49% vs. 43%). Higher take rates on higher-priced trips made the premium-priced trip category attractive to Uber, accounting for **33%** of its total 2024 gross profits from our profiled driver. In contrast, in 2019, only 14% (mostly ultra-short trips), were priced more than 10% above predicted price levels, and as such, accounted for only **12%** of Uber's 2019 profits.

Why and when does Uber choose to charge riders a higher price than they would have under the old "rate card" rules? The simplest answer to the first question is, because they can, given the flexibility of decoupling rider prices from strict time and distance rates. As to precisely how Uber determines price premiums, that remains a deeply guarded secret within Uber's proprietary algorithms. But our research suggests that Uber takes several factors into account, reflecting a real-time assessment of price sensitivity *for every trip request*. These factors include:

- Supply-demand characteristics in the immediate vicinity of a rider's trip request. For example, we found evidence that Uber charges a significant price premium to riders in surge market conditions (i.e., price premiums far higher than the surge bonus paid to drivers)

- Rider price sensitivity, based on prior trip behavior

- How quickly a driver match is found

- Competitive market conditions, based on monitoring Lyft price levels

- Price sensitivity based on origin/destination characteristics (i.e., higher prices charged to riders traveling between high-income neighborhoods

These factors are discussed further below, but suffice it to say, with increasing accuracy, Uber has been able to predict and take advantage of charging riders the highest price they are willing to pay on every trip request given real-time market conditions.

As effective as selective rider price increases have been, Uber has gained *even more profit leverage from cutting driver pay*, as evidenced by several indicators. Uber was able to cut driver pay at least 10% below time- and distance-based average pay levels on **34%** of our profiled driver's 2024 trips (Figure 10, Panel 3). This compares to **0%** of similar-sized pay cuts in 2019. This disparity is not surprising. Before upfront pricing, Uber's rate card policy guaranteed drivers a minimum pay level on every trip – no exceptions. But under upfront pricing, Uber can pay whatever *any* driver is willing to accept on *each* trip.

In fact, on **28%** of 2024 trips, our profiled driver was paid *less* than he would have earned had the rate card from two years earlier still been in effect, despite double-digit inflation in auto operating costs over this period.

For the **34%** of trips the driver was paid 10 or more percent *below* the average on trips of a similar distance, travel time, and surge bonus profile, Uber earned a **50% take rate**, generating **39%** of the total gross profits generated by this driver on Uber's behalf — a clear case of Uber's gain from drivers' pain.

While only 4% of trips were "goldmines", charging riders at least 10% above average prices AND paying drivers 10% or more below average rates (Figure 10, Panel 4), these trips earned a **57% average take rate**, accounting for **7%** of the total gross profit this driver for Uber.

Taken together, the three exception cases described above — high price, low pay, or both accounted for almost **80%** of the total gross profit earned by our profiled driver on Uber's behalf, *confirming that the price and pay flexibility has been a key driver of Uber's profit improvement*.

Appendix figures A.1 and A.2 summarize the characteristics of all trips in 2019 and 2024 for every combination of high, medium, and low rider price and driver pay.

We've already described the factors that are likely considered by Uber's rider pricing algorithms. What factors create variability in driver pay? For each trip, Uber's pay algorithms start by assigning a baseline "coupled upfront fare", which, with 95% accuracy, predicts a starting point pay figure for each

trip's given distance and travel time. But then, positive or negative "marketplace adjustments" of driver pay are applied to most (73%) trips, driven by factors *that have nothing to do with trip distance and time.* Based on our analysis of pay variance occurrences, the factors determining adjustments to driver pay likely include:

- Higher pay for trips where the rider has or is likely to experience long wait times, perhaps because several low-pay offers have already been declined by nearby drivers

- Higher pay where necessary to ensure a match for trips where riders have committed to pay a premium price

- Lower pay on trips where a surplus of drivers is available in the riders' immediate vicinity (with or without an advertised surge bonus in effect)

- Lower pay for trips with a relatively low rider price, as Uber seeks to maintain adequate profit margins

- Lower "base pay" for surge trips, indicating that drivers are not getting paid the full value of advertised surge bonuses

- Known driver pay sensitivity, based on prior trip behavior

While Uber understandably guards the secrecy of its precise algorithmic decision rules, we have been able to uncover several non-transparent, often deceptive, and previously unreported ways Uber exploits its opaque price and pay algorithms to increase profits at rider and driver expense.

- Forward Dispatch Trip profit maximization

- Surge bonus pay-shaving

- Bait-and-switch rider discounts

- Frequent rider price probes to maximize price realization

Forward Dispatch Trip profit maximization

Forward Dispatch Trips are cases where Uber offers drivers a new trip *before* the driver has completed his or her current trip. At first blush, forward dispatch trips appear to be a win-win-win proposition, giving Uber a competitively advantaged opportunity to provide better service, drivers to achieve higher utilization, and riders to get quicker matches and shorter wait times.

But in practice, forward disptch trips have allowed Uber to increase its take rates and profits at rider and driver expense. This is evident from Figure 11, based on a detailed analysis of trip histories for two power drivers from different states who have driven thousands of foward dispatchrides over the past few years. As shown, on average, riders tend to **pay 6% — 11% more** for forward dispatch trips than for other trips of a similar distance (Panel 2), even though they get worse service. Based on our analysis, while riders may get quicker matches on FDTs, they wind up **waiting 40% to 60% longer** for forward dispatch trips than on "normal" rides where drivers accept new trips while between rides (Panel 5). As a result, even though riders have no idea of whether their Uber driver has been forward dispatched, they are **three to four times more likely to cancel a forward dispatch trip** than those assigned to non-forward dispatched drivers (Panel 6).

Figure 11

Forward Dispatch Trip Characteristics
2022 (post-Upfront Price) -2024

Panel 1 — Trip Type: Driver 1 — Non-Forward Dispatch 61%, Forward Dispatch 39%; Driver 2 — Non-Forward Dispatch 40%, Forward Dispatch 60%.

Panel 2 — Rider Price Per Mile: Driver 1 — $2.81 / $2.98; Driver 2 — $3.67 / $4.08.

Panel 3 — Driver Pay Per Mile: Driver 1 — $2.01 / $2.00; Driver 2 — $2.36 / $2.55.

Panel 4 — Uber Take Rate: Driver 1 — 28.2% / 33.0%; Driver 2 — 35.7% / 37.5%.

Panel 5 — Rider Wait Time (mins): Driver 1 — 5.8 / 8.3; Driver 2 — 6.9 / 11.2.

Panel 6 — Rider Cancellation Rate: Driver 1 — 1% / 3%; Driver 2 — 2% / 8%.

Legend: Non-Forward Dispatch Trips / Forward Dispatch Trips

As for drivers, they wind up getting paid little or no more for FDTs, receive a lower share of the rider's fare (Panels 3 and 4), and face more rider cancellations and the likelihood of receiving lower ratings and tips from riders experiencing higher prices and longer wait times (Panel 6).

Surge bonus pay-shaving

Uber has significantly decreased the frequency of surge pricing, from nearly 34% of our profiled driver's trips in 2019 to 17.5% in 2024 (Figure 12). Surge bonuses, while disliked by riders, have historically been a prized source of extra income for drivers.

Figure 12

Uber Surge Trip Economics
2022 (pre-Upfront Price) vs. 2024

① % of Trips with Surge

- 33.9% — 2022
- 17.5% — 2024

② Average Surge Value

- $4.13 — 2022
- $2.49 — 2024

③ Price & Pay/Per Surge $

	2022		2024
Pay	1.0	Pay	.91
Price	1.0	Price	1.68

④ Uber Surge Take Rate

- 29.1% — 2022
- 44.2% — 2024

⑤ Uber Gross Profit Per Surge Trip

- $4.25 — 2022
- $8.66 — 2024
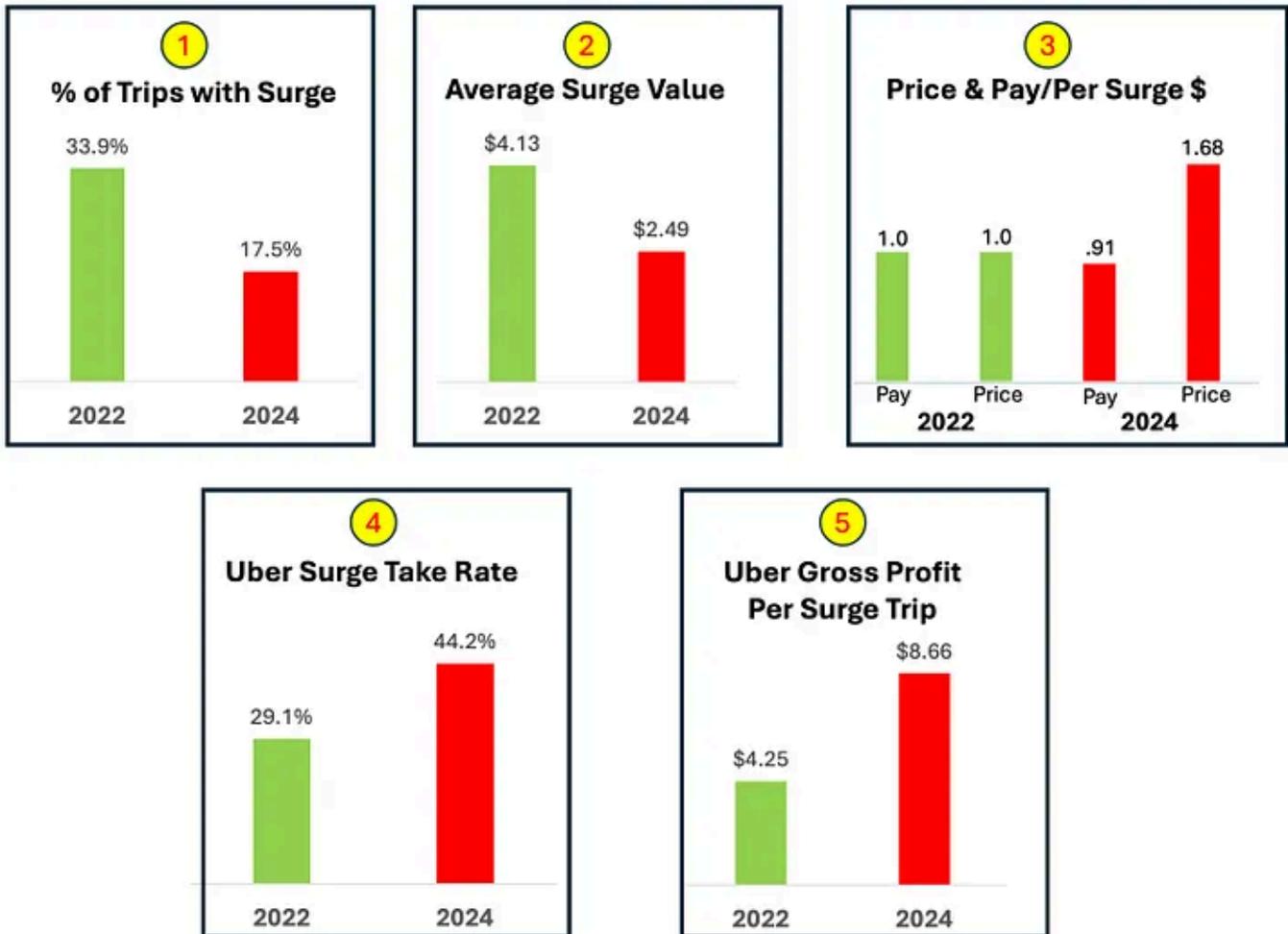
Surge bonuses are now not only less frequent under upfront pricing, but also pay less to drivers (Panel 2) and are more profitable for Uber than they used to be (Panels 4 and 5). Based on the regression results of our profiled driver's trips in 2024 shown earlier (Figure 8), when a surge bonus is in effect, Uber tends to increase rider prices 68% above the surge level shown to drivers, but reduces the driver surge value by 9% by shaving "base pay" (Panel 3).

This is yet another example of the price and pay flexibility Uber gains from upfront pricing. Before upfront pricing, driver base pay was strictly determined by trip time and distance, with advertised surge bonuses *fully*

additive to Uber's base price and pay. Under upfront pricing, however, from the driver's perspective, *base pay no longer has much meaning.* For each trip, drivers are simply shown what their total pay will be, possibly including a surge bonus.

For example, in the actual driver trip offer shown below, Uber offered the driver a seemingly attractive surge bonus of $13. But the total upfront pay offer implies a base fare (net of surge bonus) of $34.54 for the one-hour trip, **14% *less than what the driver's base pay would have been under the prior rate card policy.*** So, this surge bonus is not nearly as attractive as it is meant to appear.
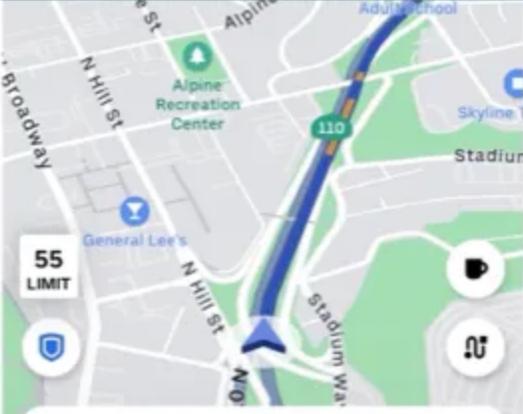
While many drivers have shared anecdotal examples of trip offers with base pay shaving, our regression analysis on thousands of UberX trips has shown that under upfront pricing, drivers get a decreased share of smaller, less frequent surges, while riders experience much bigger surge price hikes, giving Uber a *15 percentage point increase in surge trip take rates and double the average profit per surge trip than they earned in 2019*. (Figure 12, Panels 4 and 5).

Under upfront pricing, Uber has thus turned what used to be a dilutive trip category, hated by riders but beloved by drivers, into an accretive profit generator, at the expense of far worse economics for both riders *and* drivers.

Bait-and-switch rider discounts

There is also considerable evidence that Uber (and even more so Lyft) have used bait-and-switch tactics to shave the discount value to riders by raising the "base price" of trips before applying advertised discounts. As with surge pay bonuses for drivers, "base prices" no longer have much meaning for riders under upfront pricing, as Uber can and does algorithmically adjust gross *and* net prices using opaque algorithms.

To assess pricing dynamics in the US rideshare market, we examined over one million rideshare trip requests in 2023 and 2024 in eight large US cities provided by Obi, a data services company that compiles price and wait time data from passenger trip requests on competing platforms. We divided this database into two groups: Uber and Lyft trips with rider discounts (15%-20% of the total, depending on city, provider and year) and those without. We then imputed the base price of each discounted trip (=net price + discount) and compared them to the average price for undiscounted trips of a similar distance. The results of this analysis for 2023 and 2024 for Uber and Lyft are shown in Figure 13.

We found that Uber consistently charged riders a higher base price on discounted trips than the undiscounted price of trips of a similar distance (shown by the red bars in the figure below. This practice reduces the value of advertised discounts (shown by the blue bars below), and in some cases, on Lyft, leaves riders being charged *more* than they likely would have paid without the presumed discount offer.

Figure 13

Bait & Switch Rider Discounts
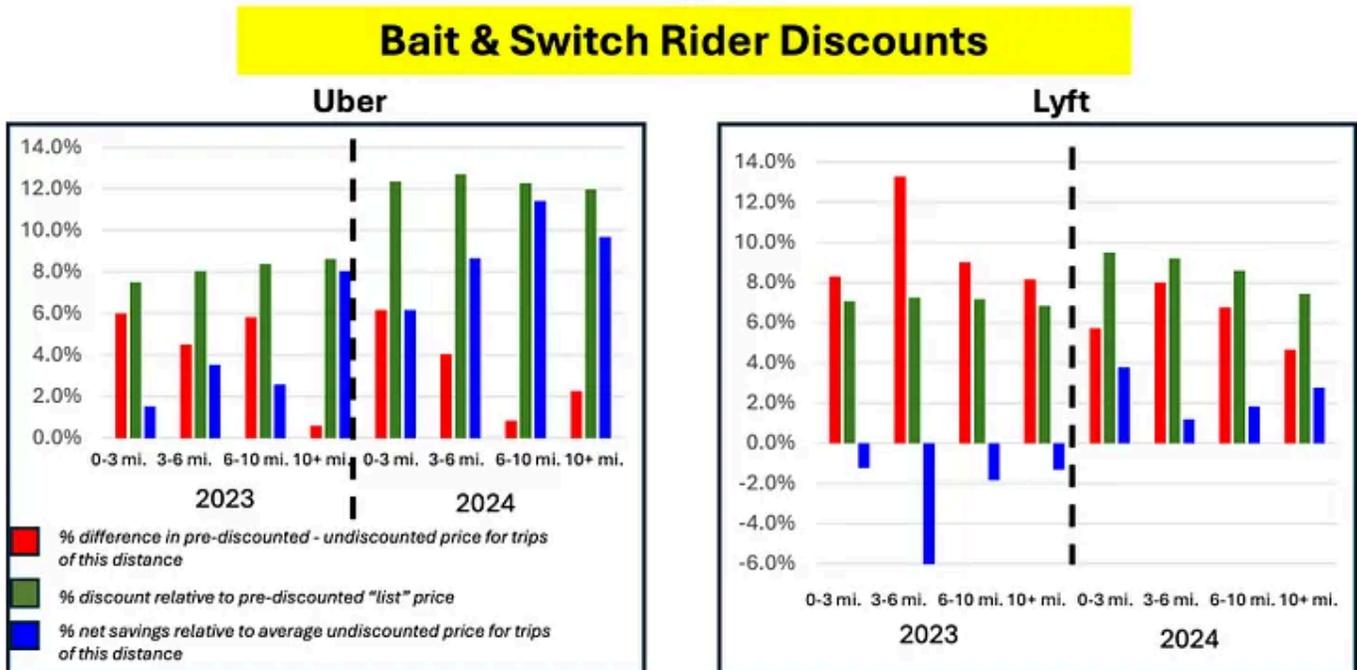
Figures shown reflect averages for over one million discounted and undiscounted trips across eight US cities in our sample in 2023 and 2024. Note that the net value of discounts shown by blue bars is smaller than the advertised discount percentage shown by green bars for every distance category and year, indicating that discounts are not as beneficial to consumers as they appear. When blue bars are negative, consumers are actually paying more *for discounted trips than the average price of* undiscounted *trips of a similar distance. Analysis covers all trips with discounts of 0%-25%*

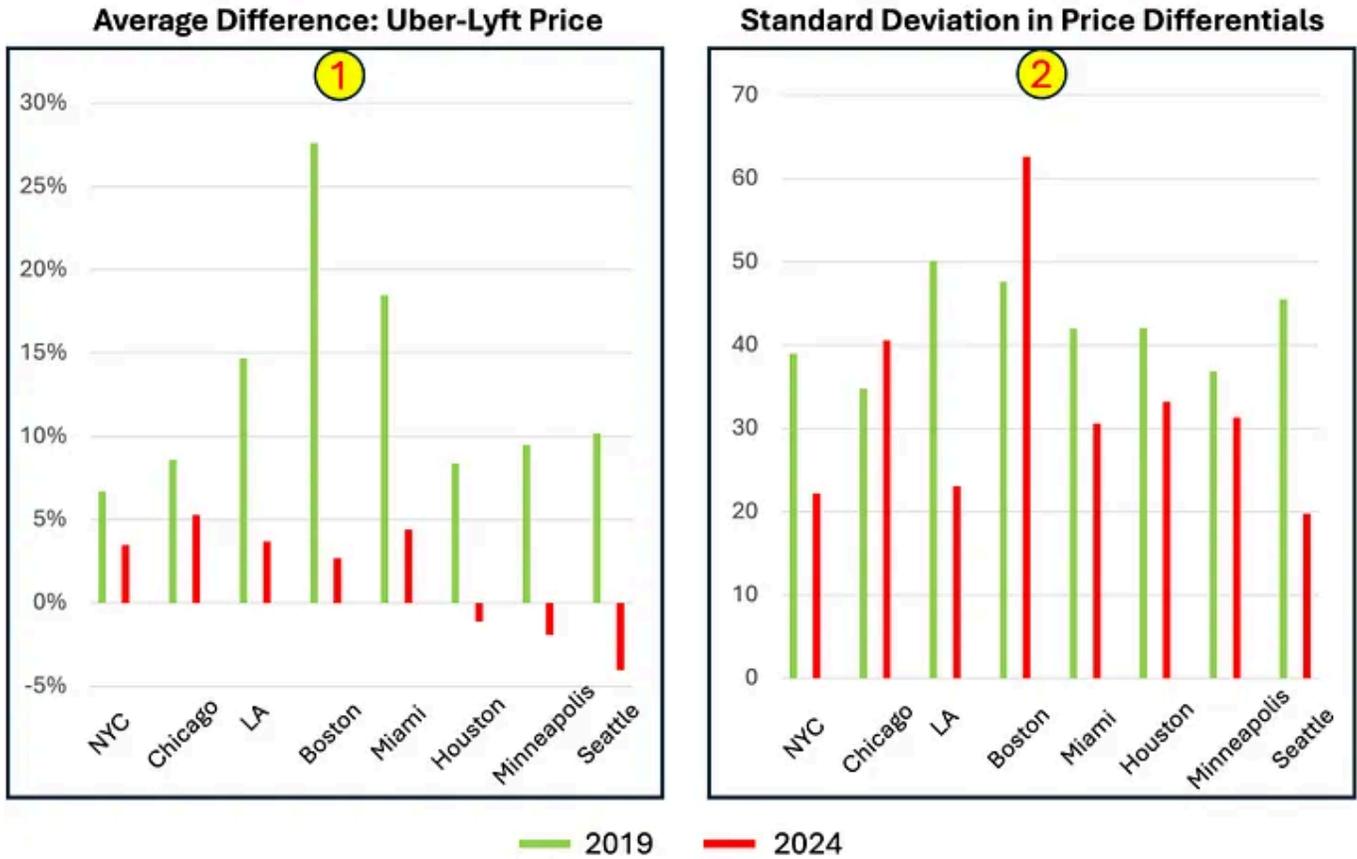### Rider price probes to maximize price realization

Uber and Lyft compete as duopolists , collectively delivering over 90% of all US rideshare trips. In duopolies, market leaders tend to rapidly copy each other's new product features and price levels to remain competitive, and that has certainly been the case in the rideshare market, as numerous innovations, pioneered by Uber or Lyft, were soon offered by both players.

- Service offerings (Standard, XL, Pooled rides)

- In-app tipping

- Rider/Driver safety features

- Scheduled rides

- Subscription/loyalty plans

- Upfront pricing

- Destination transparency for most drivers

With diminishing product differentiation, it becomes increasingly difficult for market leaders to <u>sustain brand pricing power,</u> and that has been the case in the rideshare market. As shown in Figure 14 (Panel 1), while Uber used to enjoy brand pricing premiums averaging 5% to 25% in major markets in 2019, its average rideshare price premiums had declined to low single digits or negative by 2024.

Figure 14

Price Differentials and Variance, Uber vs. Lyft

Average Difference: Uber-Lyft Price — Standard Deviation in Price Differentials

Cities (left to right): NYC, Chicago, LA, Boston, Miami, Houston, Minneapolis, Seattle

Legend: 2019 (green), 2024 (red)

However, beneath the surface of this convergence of product features and price levels, Uber has been able to exploit its competitive information advantage, to more effectively exercise algorithmic price discrimination.

While the *average* price difference between Uber and Lyft has diminished, the variance in pricing differentials at *the individual trip level* have remained quite high or even increased in some cities since the launch of upfront pricing, as shown in Figure 14, Panel 2. What this means in practice is that Uber is in a competitively advantaged position to *selectively* identify high-willingness-to-pay riders or to exploit real-time supply/demand market circumstances to raise prices, versus when it is in Uber's advantage to cut fares to retain the loyalty of high lifetime value customers or to neutralize aggressive competitor pricing initiatives.

To explore Uber's algorithmic pricing practices, we tested price quotes from Uber and Lyft in a series of simulated trip requests in three of the largest US rideshare markets: New York, Chicago, and Los Angeles. In each city, we sampled UberX and Lyft Standard prices for 20 origin-destination (O/D) pairs every two hours, 24 hours a day, during a two-week period , generating over 20,000 price points in all. Half of the chosen O/D addresses represented high-income locations (e.g., JP Morgan corporate headquarters, high-priced condominium buildings), and the other ten were randomly selected addresses with a similar trip distance profile (2–6 miles) in each city.

In all three cities, Uber's average price per mile for high-income trips was roughly 10%-40% higher than similar distance trips between randomly chosen origin-destination pairs. In contrast, Lyft's price differentials were only 1%-10% between the same O/D groups in all three cities, indicating that Uber is more aggressive than Lyft in exercising income-based price discrimination in major rideshare markets. (Figure 15)

Figure 15

Weekday Price Per Mile Differences Between High-Income and Random Origin/Destination Pairs
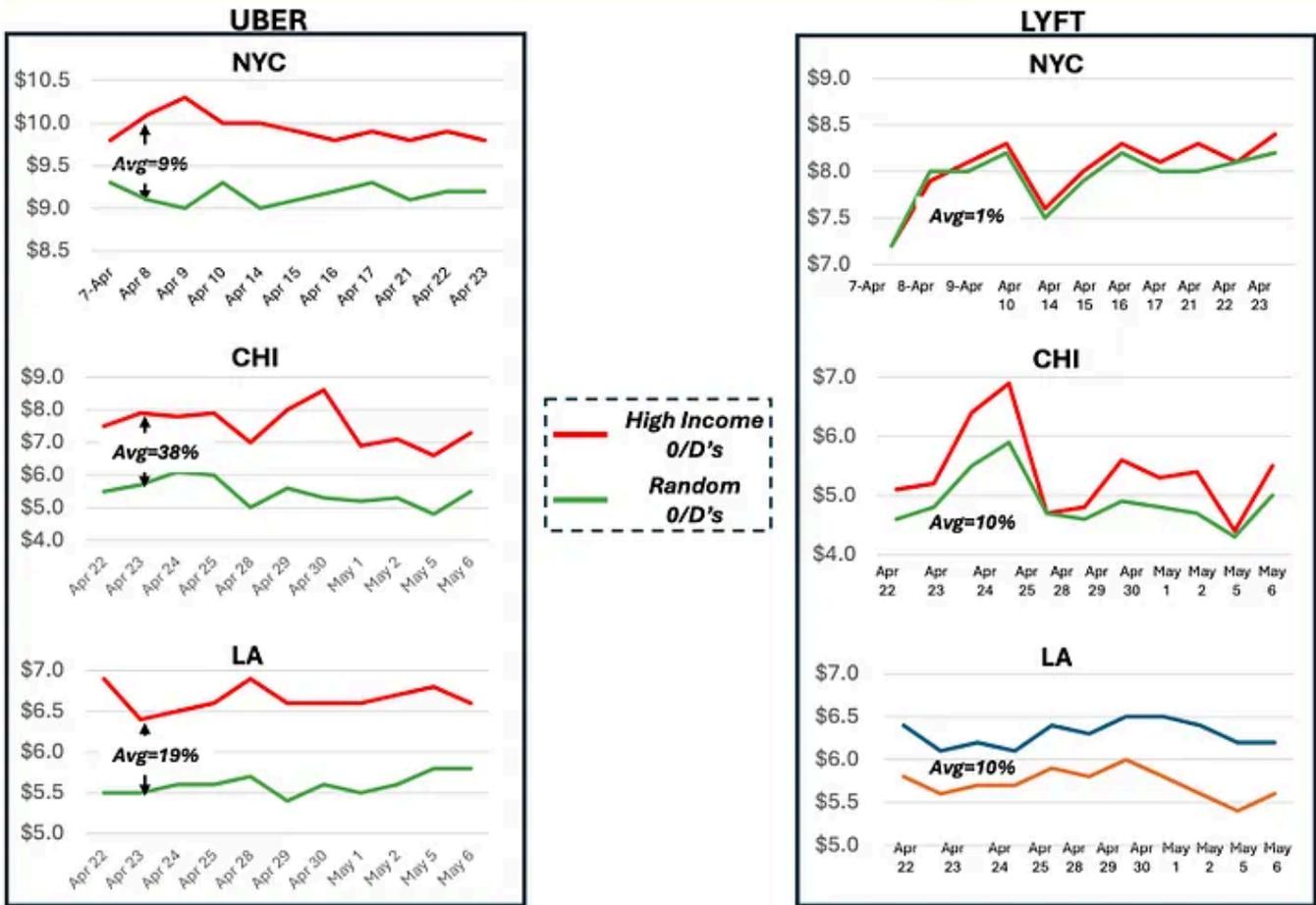
Source: Sampled every two hours for two weeks, between twenty 2-6 mile origin/destination pairs in each city

In our New York price test, across all twenty O/D pairs, Uber also charged significantly higher prices in the first half of the one-month sampling trial than in the second half (Figure 16). This suggests Uber has capability to systematically probe for the highest price riders are willing to pay, reducing prices as necessary when trip requests are repeatedly rejected (as was the case in our test).

Figure 16

Uber & Lyft Prices On Repeated NYC Trip Requests

Daily average UberX and Lyft Standard prices for 2-6-mile trips sampled every two hours for four weeks between the same 20 origin/destination pairs in NYC

*Grey regions indicate weekends
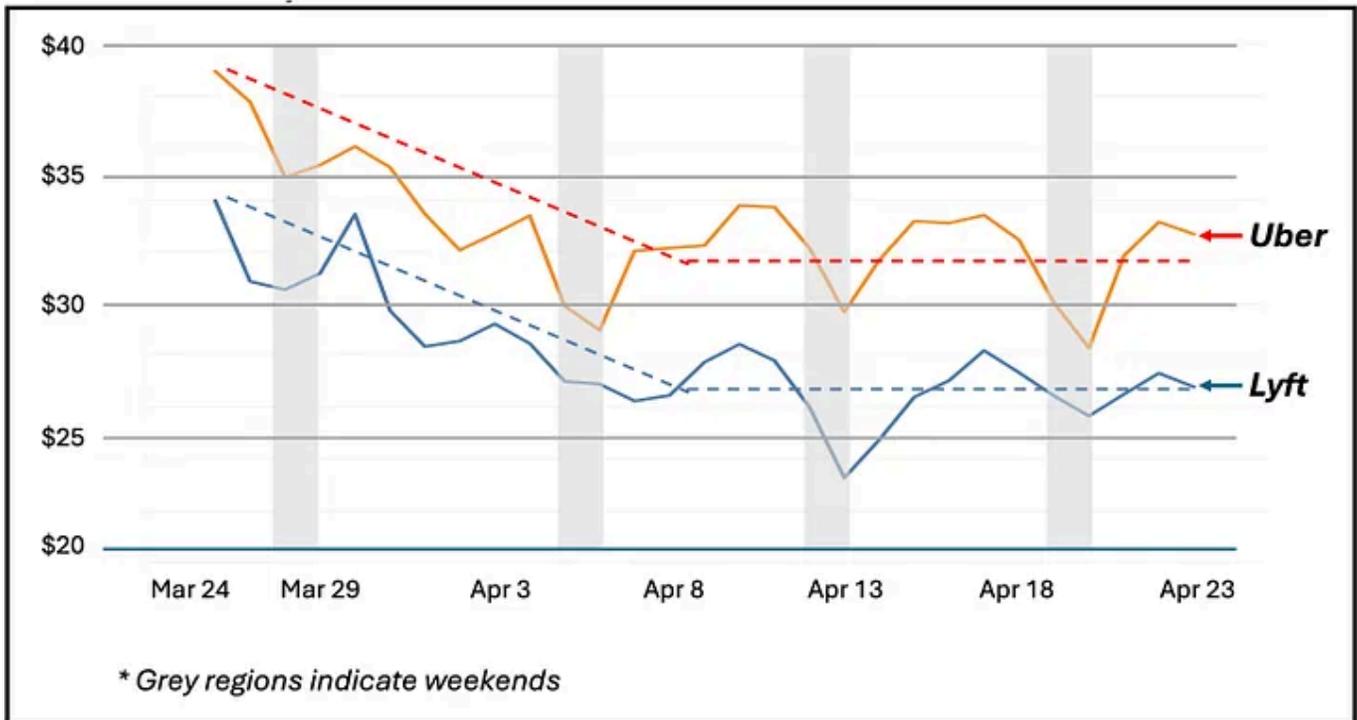
To further explore this rider pricing dynamic, one of our researchers used his own Uber and Lyft accounts to request a trip between the same uptown-to-midtown Manhattan addresses every day at 9 AM and 9 PM for two weeks, experiencing even more aggressive Uber price-probing tactics.

As shown in Figure 17, after dropping its price by 22% over the first three days without gaining rider acceptance, Uber then offered an additional **33%** discount while continuing to cut prices over the ensuing week, yielding a **55%** reduction from our researcher's initial trip request. When the discount week ended, Uber's price quote spiked by **160%** to its highest level recorded over the entire test period.

Figure 17

Uber & Lyft price test on repeated NYC trip requests
Uber & Lyft price quotes for trip from uptown to midtown NYC,
9 AM and 9 PM each day over a two-week period for an individual user

* Grey region indicates period during which Uber offered a 33% discount

Uber's frequent price probing in these examples is consistent with our previously reported finding that Uber frequently raises and lowers price quotes for any given trip distance and travel time, even when supply/demand surge adjustments are not in effect. Uber's upfront pricing policy thus enables the company to set rider prices closer to riders' willingness to pay and to react to real-time market dynamics on every rideshare trip.

Summary

This research project has shown that Uber's improved economics have been predominantly driven by its pivotal launch of "upfront pricing", the largest known implementation of price discrimination on both sides of its marketplace.

When Uber launched "upfront pricing" in mid-2022, it touted the benefit that riders would no longer have to wait till the end of their trip to learn the price of their ride. And drivers would know, upfront, exactly what they would be paid (including any surge bonuses) to destination addresses that previously weren't disclosed in advance.

But this "upfronted-ness" also meant that rider and driver fares became largely decoupled from actual trip time and distance, giving Uber the discretion to raise prices and/or lower pay on every trip. As a result, upfront pricing has proven to be as devilishly effective as it has been opaque.

Given the substantial cash flow unlocked by upfront pricing, Uber has understandably vigorously opposed any initiative promising to yield more transparency about its pay and price practices. Examples include:

- Fighting state regulations requiring the company to disclose the fare split between drivers and riders. In Colorado, for example, earlier this year, Uber threatened to cease operations if the state passed legislation to require greater rideshare price and pay transparency, and then sought an injunction to block the state from enacting the newly passed legislation. When a judge denied Uber's request, the company responded by punishing Colorado rideshare drivers, removing in-app tipping, and eliminating several driver support services, sending a stark warning to other states that might consider similar legislation

- Unwillingness to disclose even the most basic metrics on its rideshare operations in the US and other major markets, such as its number of rideshare or delivery trips, its number of active drivers, revenue, bookings, take rates, and pricing or pay trends. Moreover, as of Q1 2025, Uber stopped disclosing even its deliberately confusing version of global rideshare take rates, without explanation.

- Erecting barriers to deter third-party apps from providing useful pricing and pay transparency tools to drivers and riders. Tactics have included technical blocks to disable app functionality and legal actions (e.g., cease-and-desist demands, injunction requests, and deactivation threats to deter riders and drivers from using third-party apps)

- <u>Vigorously refuting</u>, without evidence or with misleading data distortions, research and press coverage that presents information the company does not want publicized

- Stonewalling drivers' requests for trip history data (similar to the information analyzed in this report), without explanation

These actions collectively harm customers, drivers, and businesses across Uber's global operations and could only have been pursued by a company with dominant market power.

For now, Uber is riding the crest of an enormously successful strategy that critically depends on two capabilities that differentiate its operations from those of other market-maker platforms.

- *Arbitrage*
  Unlike other platforms like Airbnb, Etsy, or TaskRabbit, which treat their suppliers as true independent contractors, Uber sets the price for rideshare services on behalf of its drivers, generating revenue through margin spreads, rather than commissions. This gives Uber enormous leverage because it knows the price a rider is willing to pay *before* it seeks a driver match. In a two-sided marketplace, knowing the price that one party is willing to buy or sell *before* negotiating the price with the other side gives the market-maker a significant advantage. This is the reason why, for example, smart homebuyers would never enlist the same broker

to represent both themselves and the home seller (a practice which, in fact, is illegal in many states). Uber's arbitrage advantage underscores why the company so vigorously seeks to prevent external players – state legislatures or a third-party data transparency apps like Obi or GigU — from making its prices and pay rates more transparent to riders, drivers, and regulatory agencies.

- *Information and analytics*
  No company is better positioned to exploit the profit leverage of algorithmic price discrimination than Uber, whose market dominance gives it more insight on rider and driver behavior than any competitor, backed by superior AI-driven algorithms. As Dara Khosrowshahi explained in a <u>recent interview</u>:

> *"The key for us is to add supply over a long period of time, and then be able to push up supply or pull down supply, depending on the particular marketplace balance seasonally, based on time of day as well. That's where the fun of the algorithms of matching and the pricing algorithms come in for us."*

But Uber's "fun" exploits a large pool of precariat drivers (and riders) who lack the flexibility to choose their work or riding hours, and whose financial savvy is no match for Uber's sophisticated price discrimination algorithms. The cards are thus heavily stacked in Uber's favor, provided that they can maintain the effectiveness of their algorithmic tools and the opacity of their pricing and pay policies.

Implications for stakeholders

Uber's near- and medium-term outlook for investors remains strong. Uber has strengthened its competitive position over the past few years and faces

few serious market, technology, or competitive threats. Over the longer term, however, Uber faces two significant business risks.

1. Regulatory Risk

2. Emerging robotaxi technology

On the regulatory front, Uber will likely face increasing state and federal antitrust scrutiny. As Uber's market power and profits have grown, its service quality has declined in terms of longer wait times and higher prices for riders, and lower pay for drivers.

In addition, state and local regulators are expressing growing concern over Uber's pricing, pay, and safety policies affecting local workforces and business communities, as well as Uber's stubborn resistance to greater data transparency. In the past five years, over half a dozen states have passed minimum driver pay regulations, and several others are considering similar proposals seeking to provide greater gig worker labor protections. So far, Uber has largely outmaneuvered government regulators, but the risk and scope of future action is steadily growing.

Uber's second long-term threat is the accelerating progress of autonomous vehicle (AV) technology. Uber's founder, Travis Kalanick, recognized the existential threat (and opportunity) of robotaxis and committed the company to first-mover deployment. But Kalanick's successor, Dara Khosrowshahi, discontinued Uber's AV R&D efforts in 2020, after several technical stumbles, a fatal accident, and the urgency of cutting costs.

That has left Uber with the need to partner with external suppliers of AV technology and vehicle support services to power its future AV rideshare and

delivery businesses. While robotaxi technology holds the promise of cheaper, safer rideshare service in the long term, the impacts of AVs on Uber's economics are less clear.

Instead of the substantial bargaining power Uber currently enjoys over millions of independent human drivers, Uber will now have to negotiate for rideshare supply with just a handful of deep-pocketed companies that own critical AV technology and supply service capabilities, which account for Uber's biggest cost of doing business.

While Uber undoubtedly brings desirable market access and hybrid driver/AV platform management skills to the bargaining table, AV technology companies may choose to build these capabilities on their own. For example, in the world's largest rideshare market, China, Baidu's Apollo Go division has already delivered over 11 million robotaxi rides with its own vertically integrated vehicle technology, fleet management, and rideshare platform, without the need to rely on China's biggest rideshare platform (and former Uber competitor), Didi Chuxing

In the US, the largest robotaxi provider, Waymo is, for now, hedging its bets, splitting the delivery of its robotaxi service through its own and Uber's rideshare platform. A wild card in the growing robotaxi market is Tesla, which is committed to a third robotaxi business model — decentralized, autonomous AV supply managed through Tesla's own rideshare platform. In theory, decentralized AV supply would hasten Tesla's ability to scale robotaxi services. After all, a century ago, while Ford continued to rely on selling its market-leading Model T through factory-owned stores, GM pioneered the use of franchised, privately owned dealerships to scale and reach a far bigger US market.

While the success of Tesla's vision still faces major uncertainties over the integrity of its AV technology, and with customer acceptance, under any circumstances, Uber will face more competition from more capable rideshare suppliers with stronger bargaining positions than it has faced in the past.

In response, Uber is striving to expand its market reach and customer loyalty by launching new mobility and delivery services and partnerships to fulfill Khosrowshahi's vision of becoming the "operating system for consumers' everyday lives."

But a cautionary concern for the long-term success of this vision is that it requires Uber to build and nurture stakeholder trust, which is at odds with the exploitative business practices described in this report.

Over its tumultuous 15-year history, Uber has pursued "ruthless efficiency" at the expense of key stakeholders, as its Chief Product Officer, Sachin Kansal, recently described the company's philosophy.

- Uber was launched by a founder who brazenly and boastfully ignored transportation regulations and steamrolled officials who tried to enforce them.

- Uber is now led by a CEO who has repeatedly threatened to abandon vital mobility services in localities that propose legislation intended to enhance worker protections or data transparency in the rideshare sector.

- Uber's newfound financial success relies heavily on opaque algorithmic price discrimination on both sides of its marketplace and deceptive business practices that boost profits at the expense of riders and drivers, while often delivering degraded service.

- To protect its exploitative business model, Uber aggressively deploys technical and legal tactics to prevent data service providers from providing useful decision support tools for riders and drivers

Time will tell whether a company with this track record deserves the trust of consumers, drivers, and regulators to become the operating system of our everyday lives.

Uber Response

Uber was given a preview of the findings of this research project and provided the following response.

"Uber's pricing is designed to be transparent and fair for both riders and drivers. Upfront pricing gives riders clarity before they book and allows drivers to make informed decisions based on full visibility into pay, distance, and expected duration. Our dynamic pricing algorithms help balance real-time supply and demand to improve reliability across the platform. Upfront prices are not personalized — our pricing algorithms do not use information about an individual rider or driver's personal characteristics. Suggestions that our systems manipulate pricing unfairly or discriminate are simply false and not supported by evidence."

Acknowledgements

The author would like to acknowledge the efforts of Columbia Business School researchers Alex Aguilera and Chulhee Kim for their dedicated and skilled efforts in conducting the research and analytics for this project. I would also like to thank the management team of Obi, who graciously shared access to and technical support for their unique and valuable database on global rideshare pricing dynamics. And finally, I am indebted to several dedicated Uber rideshare drivers — you know who you are — who graciously

shared their trip histories, guidance, and experiential insights gained behind the wheel for many years on Uber's platform. Each of these contributors shares my genuine interest in improving the transparency and equitable allocation of benefits from improving urban mobility.

Appendix

Figure A.1

Uber Take Rate Profit Levers - 2019

2019 Distribution of Uber Profitability by Deviation from Regression Predictions*

For 2,128 trips from 08/26/2019 – 12/31/2019

	High Driver Pay	Average Driver Pay	Low Driver Pay
High Rider Price	Avg Trip Dist (miles) 1.5 Avg. Take Rate 42.3% Avg. Uber Profit/Trip $4.15 % of Total Trips 11.5% % of Total Profit 9.9% % of Total Driver Pay 8.5%	Avg Trip Dist (miles) 16.6 Avg. Take Rate 35.9% Avg. Uber Profit/Trip $12.02 % of Total Trips 0.2% % of Total Profit 0.6% % of Total Driver Pay 0.8%	Avg Trip Dist (miles) N/A Avg. Take Rate N/A Avg. Uber Profit/Trip N/A % of Total Trips 0.0% % of Total Profit 0.0% % of Total Driver Pay 0.0%
Average Rider Price	Avg Trip Dist (miles) 3.6 Avg. Take Rate 40.6% Avg. Uber Profit/Trip $4.65 % of Total Trips 2.0% % of Total Profit 1.9% % of Total Driver Pay 2.0%	Avg Trip Dist (miles) 4.4 Avg. Take Rate 37.8% Avg. Uber Profit/Trip $4.94 % of Total Trips 85.5% % of Total Profit 87.0% % of Total Driver Pay 88.3%	Avg Trip Dist (miles) 2.6 Avg. Take Rate 47.0% Avg. Uber Profit/Trip $4.09 % of Total Trips 0.8% % of Total Profit 0.7% % of Total Driver Pay 0.4%
Low Rider Price	Avg Trip Dist (miles) N/A Avg. Take Rate N/A Avg. Uber Profit/Trip N/A % of Total Trips 0.0% % of Total Profit 0.0% % of Total Driver Pay 0.0%	Avg Trip Dist (miles) N/A Avg. Take Rate N/A Avg. Uber Profit/Trip N/A % of Total Trips 0.0% % of Total Profit 0.0% % of Total Driver Pay 0.0%	Avg Trip Dist (miles) N/A Avg. Take Rate N/A Avg. Uber Profit/Trip N/A % of Total Trips 0.0% % of Total Profit 0.0% % of Total Driver Pay 0.0%

***High** pay or price categories defined as 10+% **above** predicted levels from regression
Low pay or price categories defined as 10+% **below** predicted levels from regression
Average pay or price categories defined as trips within +/- 10% of predicted levels from regression

Figure A.2

Uber Take Rate Profit Levers - 2024

2024 Distribution of Uber Profitability by Deviation from Regression Predictions*

For 5,548 trips from 01/01/2024 – 12/31/2024

	High Driver Pay	Average Driver Pay	Low Driver Pay
High Rider Price	Avg Trip Dist (miles) 3.6 Avg. Take Rate 39.3% Avg. Uber Profit/Trip $7.60 % of Total Trips 6.8% % of Total Profit 8.4% % of Total Driver Pay 9.1%	Avg Trip Dist (miles) 3.4 Avg. Take Rate 51.8% Avg. Uber Profit/Trip $9.73 % of Total Trips 11.3% % of Total Profit 17.7% % of Total Driver Pay 12.0%	Avg Trip Dist (miles) 4.0 Avg. Take Rate 57.4% Avg. Uber Profit/Trip $11.29 % of Total Trips 3.9% % of Total Profit 7.1% % of Total Driver Pay 3.8%
Average Rider Price	Avg Trip Dist (miles) 3.0 Avg. Take Rate 27.5% Avg. Uber Profit/Trip $3.81 % of Total Trips 12.6% % of Total Profit 7.7% % of Total Driver Pay 14.7%	Avg Trip Dist (miles) 3.2 Avg. Take Rate 42.8% Avg. Uber Profit/Trip $6.05 % of Total Trips 21.8% % of Total Profit 21.4% % of Total Driver Pay 20.7%	Avg Trip Dist (miles) 2.9 Avg. Take Rate 52.1% Avg. Uber Profit/Trip $7.13 % of Total Trips 21.8% % of Total Profit 25.2% % of Total Driver Pay 16.8%
Low Rider Price	Avg Trip Dist (miles) 3.6 Avg. Take Rate 8.4% Avg. Uber Profit/Trip $1.13 % of Total Trips 4.7% % of Total Profit 0.9% % of Total Driver Pay 6.3%	Avg Trip Dist (miles) 3.8 Avg. Take Rate 27.5% Avg. Uber Profit/Trip $3.51 % of Total Trips 8.8% % of Total Profit 5.0% % of Total Driver Pay 9.5%	Avg Trip Dist (miles) 3.5 Avg. Take Rate 40.8% Avg. Uber Profit/Trip $4.91 % of Total Trips 8.4% % of Total Profit 6.7% % of Total Driver Pay 7.0%

*High pay or price categories defined as 10+% above predicted levels from regression
Low pay or price categories defined as 10+% below predicted levels from regression
Average pay or price categories defined as trips within +/- 10% of predicted levels from regression

Uber Upfront Pricing Price Analysis Price Discrimination Wage Discrimination

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StrikeOn, LLC
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My name is Jurek Martínez. I am one of the founders of the first virtual community in the entire US managed by a mobile app called StrikeOn. I am a fan and follower of your studies on Uber and Lyft. Your information has helped... more

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ABSTRACT

Post-training alignment often reduces LLM diversity, leading to a phenomenon known as *mode collapse*. Unlike prior work that attributes this effect to algorithmic limitations, we identify a fundamental, pervasive data-level driver: *typicality bias* in preference data, whereby annotators systematically favor familiar text as a result of well-established findings in cognitive psychology. We formalize this bias theoretically, verify it on preference datasets empirically, and show that it plays a central role in mode collapse. Motivated by this analysis, we introduce *Verbalized Sampling (VS)*, a simple, training-free prompting strategy to circumvent mode collapse. VS prompts the model to verbalize a probability distribution over a set of responses (e.g., "Generate 5 jokes about coffee and their corresponding probabilities"). Comprehensive experiments show that VS significantly improves performance across creative writing (poems, stories, jokes), dialogue simulation, open-ended QA, and synthetic data generation, without sacrificing factual accuracy and safety. For instance, in creative writing, VS increases diversity by 1.6-2.1× over direct prompting. We further observe an emergent trend that more capable models benefit more from VS. In sum, our work provides a new data-centric perspective on mode collapse and a practical inference-time remedy that helps unlock pre-trained generative diversity.

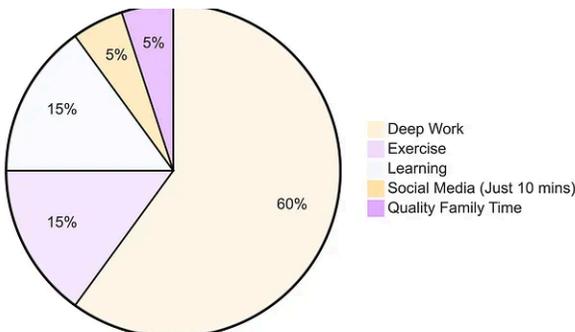**Problem:** Typicality Bias Causes Mode Collapse

Solution: Verbalized Sampling (VS) Mitigates Mode Collapse

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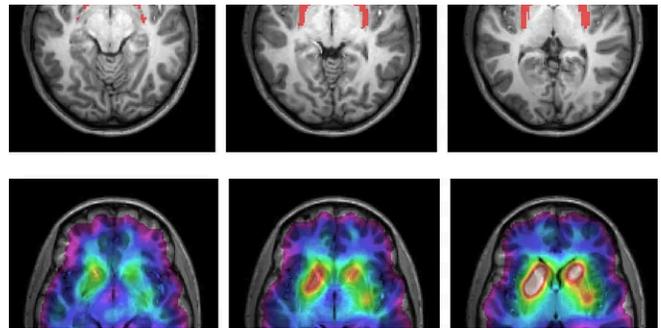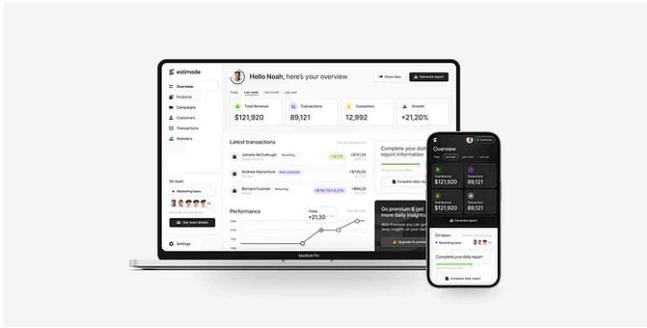
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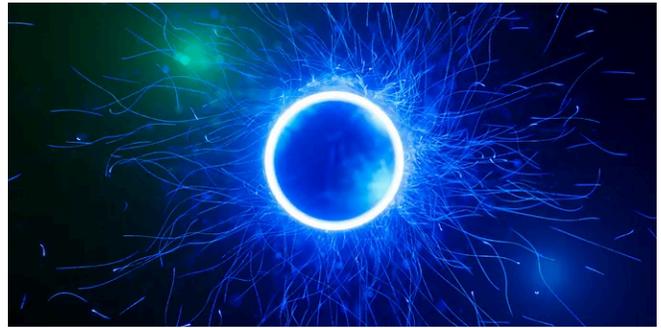
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