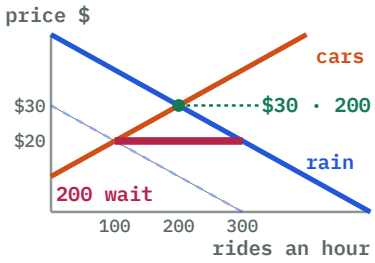
Why does the price change while you look?

A ride costs more in the rain because demand jumped: the price that clears is recomputed every few minutes. Where supply can grow, a higher price brings more out; where it cannot, it only rations. The numbers, the limits, the real cases. Question 5 of the ten to ask about any app.

1 Rain moves demand

shortage at a fixed price

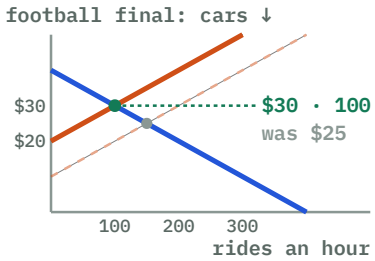
- **Hop** = ride app on **Coralia** (toy island) · **Noa** rides · **Kai** drives on weekends
- Riders' line = top price each rider will pay → fewer rides as price ↑ · drivers' line = lowest price each driver takes → more cars as price ↑ (Micro 2)
- Normal night (**P** = price in $): riders `300 − 10P`, cars `10P − 100` → `$20`, **100 rides**
- Rain → riders `500 − 10P` (line slides **right**) · fixed `$20`: `300 − 100 = 200` wait
- **Shortage** = more want to buy at the price than offered → **queue** (price ceiling = top price set by law, Micro 4)



2 The price that clears

surge = equilibrium

- **Equilibrium price** = the price that clears: riders wanted = cars offered
- `500 − 10×30 = 200` · `10×30 − 100 = 200` ⇒ **$30** = **surge** (1.5 × $20) · **200 rides**
- Extra 100 rides ← **more drivers log on** (supply) + 100 riders walk or wait (demand rationed)
- Storm `600 − 10P` → `$35`, 250 rides
- **Dynamic pricing** = the same equilibrium price, recomputed every few minutes · ↑ **or** ↓
- Practice: festival `400 − 10P` → `$25`, 150 rides (demand ↑: price ↑, rides ↑) · football final, 100 drivers home `10P − 200` → `$30`, 100 rides (supply ↓: price ↑, rides ↓)



3 When supply cannot grow

only rations

- Concert hall, **5,000** seats, demand doubles → higher price adds **no seat** → decides **who** gets in · extra money → seller ⇒ feels unfair (fairness, Behavioral 7)
- **Rationing** = deciding who gets something scarce · price → by willingness to pay · queue → by waiting
- Sort: `MORE COMES OUT` ride in the rain · meal delivery at dinner `ONLY RATIONS` football-final tickets · last flight seats · festival hotel `FIXED` bus fare · stamp · school lunch · Kai's daytime loaf · afternoon cinema show (cheap by the clock, not the crowd)
- Practice **cap** $25 in the rain = **price ceiling** → 250 riders, 150 cars → **100 wait**, 150 rides (not 200) · cap → less pay → fewer drivers → queue · riders with a car pay $5 less; 50 rides lost
- Practice **price ↓**: Kai, 20 loaves at 6 pm, stale tomorrow · `$4 × 5 = $20` (15 thrown away) · `$2 × 20 = $40` · baking = **sunk cost** (Behavioral 4)

4 Real world

dated facts

- **American Airlines**, **1985**: cheap seats with rules (book early, no refunds), priced by computer → **yield management**
- **Uber** (real ride app) surge · Hall, Kendrick, Nosko, **2015** (two worked at Uber) · Madison Square Garden concert, 21 March 2015, surge on → `2.6` min average wait · New Year's Eve 2014 (New York), surge broken `26` min → waits ≈ `8` min, many requests unfilled
- **Consumer surplus** = what riders would pay – what they paid · UberX, 4 US cities, 2015 ≈ `$2.9 bn` ≈ `$1.60` per $1 spent (Cohen, Hahn, Hall, Levitt, Metcalfe, **2016**, not yet checked for a journal; two at Uber)
- **Coca-Cola**, Oct **1999**: reports of a vending machine raising prices on hot days → critics: unfair · company: none in stores
- Debate, no verdict: `FOR SURGE` brings more cars out, those who need a ride most get one · `AGAINST` on a bad night riders with less money cannot afford a ride; can feel like profiting from it

5 So what?

question 5 of 10

- **Ten questions to ask about any app** · **1 · Who pays, if not you?** · **2 · How many others are on it?** · **3 · What does one more copy cost?** · **4 · What does it know about you, and what is that worth?** · **5 · Why did the price just move?** → which line moved? can more supply come?
- Noa → pays $30 in the rain, but gets a ride · Kai → sees the surge, drives that night → Lesson 6 (market power)

Watch out: a higher price ≠ always greed: ask which line moved · demand ↑ → price ↑, rides ↑ · supply ↓ → price ↑, rides ↓ · fixed supply → price only rations · dynamic prices also **fall**