# Why is Instagram free?

Two sides, one app: users and advertisers. Why the best user price can be zero, when it is not, which side pays, a price below zero, the real numbers of 2024. Question 1 of the ten to ask about any app.

## 1 Two sides

one app, two groups

- **Coralia** (toy island, dollars) · **Lagoon** = its free social app, like Instagram · no price, no bill, ads
- **Noa** = user → pays **$0**, pays with **attention** · **Kai's bakery** = advertiser → pays **dollars** to reach users
- **Two-sided market** = a business serving **2 groups who need each other** → can charge one side little or nothing, because the other pays more
- **Rochet & Tirole** · French economists · named it in a paper of **2003** · Jean Tirole: Nobel Prize **2014**
- Older than apps: **free-to-air TV** (anyone with an antenna, paid by ads) · cheap newspapers · a mall (shops pay rent) · a card (shops pay a fee)

the other side pays

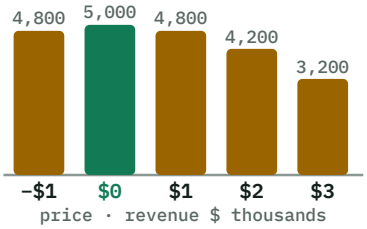



## 2 Best price: $0

revenue from both sides

- **Revenue** = all money taken in = `(user price + advertiser payment) × users`
- Lagoon: users = `1,000 − 200 × price` (thousands) · advertisers pay **$5** a user a month
- `$0: 1,000 × 5 = 5,000` · `$1: 800 × 6 = 4,800` · `$2: 600 × 7 = 4,200` · `−$1: 1,200 × 4 = 4,800` ($ thousands a month)
- Each $1 of price → 200 thousand users leave → each takes **$5** of ads with them ⇒ **free earns the most**, not a gift
- Practice · Reef (video app): `900 − 150 × price`, ads $6 → `$0: 900 × 6 = 5,400` · at $1 viewers pay $750k, leavers take `150 × 6 = $900k` (k = thousand)

Lagoon · ads $5 → best $0

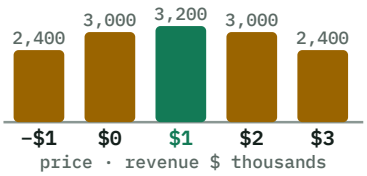



## 3 Not a law

who pays, how much

- Advertisers pay only **$3** → `$1: 800 × 4 = 3,200` > `$0: 1,000 × 3 = 3,000` and `$2: 600 × 5 = 3,000` → best price **$1**
- Practice · ads **$2** → `$2: 600 × 4 = 2,400` > 2,250 ($1, $3) > 1,800 ($0) → best price **$2**
- Rule → the side that **gains more from reaching the other** pays more · user worth a lot to the other side ⇒ user price ↓ (to 0, or below)
- Chain: advertisers pay more → lost user costs more → user price ↓ → more users → advertisers reach more
- **Negative price** = the platform pays a side to join · Lagoon at −$1 · practice **Shell Card**: shops pay 2% ( `Kai: 2% × $500 = $10` /day) · Noa gets 1% back ( `$200 → $2` : price −$2) · her fees `2% × $200 = $4` → card keeps `$4 − $2 = $2`

Lagoon · ads $3 → best $1




## 4 Who pays?

sort it

| THE USER | THE OTHER SIDE | BOTH |
|---|---|---|
| cinema ticket · music app, paid plan, no ads · loaf at Kai's bakery | free social app · free-to-air TV · search engine (ads) · free paper at the bus stop (ads) · mall (shops' rent) | newspaper sold for $1, full of ads · game console (players buy it, studios pay a fee per game) |

## 5 Real world

2024 · company reports

- **Meta** (Instagram, Facebook, WhatsApp) · revenue **$164.5 bn** (bn = billion) · ads **$160.6 bn ≈ 98%** · **3.35 bn** daily users (Dec 2024) → `165 ÷ 3.35 ≈ 50` → about **$50** a person a year (≈ $4 a month)
- **Alphabet** (owns Google, YouTube) · revenue **$350 bn** · ads ≈ **$265 bn** ≈ three quarters
- US newspapers' ad revenue · ≈ **$49 bn** (2005) → under **$10 bn** (2020) · Pew Research Center (US research group) → **ads follow the audience**
- Saying (≈ 2010, author unknown) "If you're not paying, you're the product" → **half right**: you are the audience sold + you get a service

## 6 So what?

question 1 of 10

- **Ten questions to ask about any app** · **1 · Who pays, if not you?** → price to you = 0 ⇒ find the side that pays more + what it buys
- Noa → attention · Kai → dollars to reach bread lovers · no villain: **each side gets something**
- Walrasia too: lessons 1–2 of every course free · later lessons open with an email · subscription planned

**Watch out:** free ≠ gift (it is the price that earns most) · free ≠ law (it depends on what the other side pays) · revenue = users × (price **+** ad payment), not users × price · a price can go **below** zero